

CARDIOVASCULAR DEVICES FOR MONITORING 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.

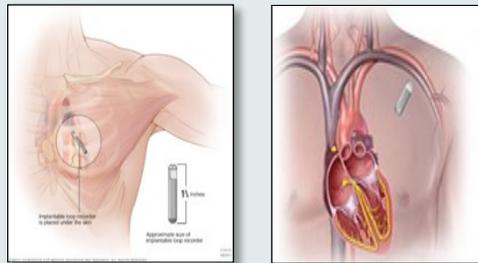
Cardiac devices differ based on their use, function, and placement. Some are permanent implantable devices while others are portable temporary monitors. A cardiologist will be part of the child's treatment plan for any type of cardiac device. Most cardiac devices implanted under the skin are surgically 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 **monitor** heart irregularities or rhythm disorders include implanted monitors and portable monitors.

Implanted Monitors:

Loop

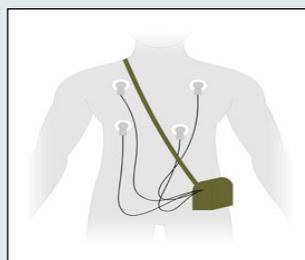
An implanted monitor can be used to monitor a person who has unexplained fainting spells or certain types of irregular heartbeat. A loop recorder is a wireless cardiac monitor that allows for remote monitoring. It can record the heart's rhythm continuously for up to three years. It is implanted just below the skin in the upper chest.



Portable Monitors:

Holter Monitor

A Holter monitor is a small device that makes a 24 hour recording of the heart's rate and rhythm. The test is not painful and electrodes are placed on the child's chest and then connected with wires to the Holter monitor. The Holter monitor follows a child's full day of heartbeats and is very helpful in detecting abnormal heartbeats that only happen occasionally.



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 monitoring 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 limits or restrictions
- 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

Johns Hopkins Medicine– Loop Recorder Information

<https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/loop-recorder-implantation>

Mayo Clinic Implantable Loop Recorder

<https://www.mayoclinic.org/tests-procedures/implantable-loop-recorder/pyc-20384986>

Galli, A., Ambrosini, F., & Lombardi, F. (2016). Holter Monitoring and Loop Recorders: From Research to Clinical Practice. *Arrhythmia and Electrophysiology Review*, 5(2), 136-143.