

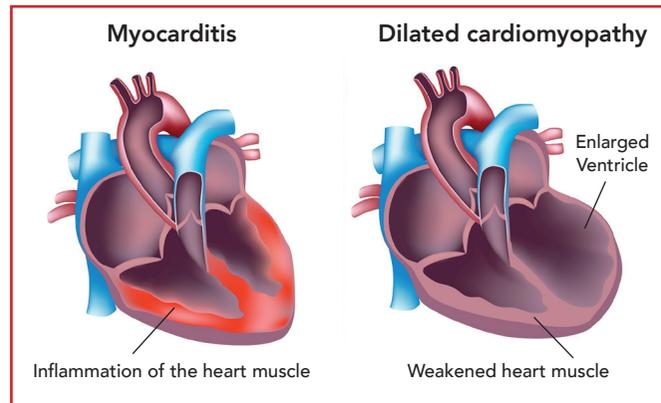
# Paediatric Myocarditis

## What is myocarditis?

Myocarditis is inflammation of the heart muscle (myocardium). This affects the heart muscle and the heart's electrical system as well as reducing the heart's ability to pump, causing rapid or abnormal heart rhythms (arrhythmias). Myocarditis can affect the muscle cells of the heart, the valves and the blood vessels.

In severe cases, the extent to which myocarditis weakens the heart can also affect its ability to supply the rest of the body with oxygenated blood.

Myocarditis in very young babies is usually more severe due to their underdeveloped immune system, which often leads to other organs, such as the liver and kidneys, being affected.



When myocarditis causes the muscles of the heart to weaken resulting in enlarged heart chambers, referred to as dilated cardiomyopathy, a heart transplant may be required as patients with dilated cardiomyopathy may go into heart failure. Heart Failure is when the heart can no longer pump adequately to supply the body with the blood flow and

## Brought to you by the Conor James Foundation

The Conor James Foundation aims to raise awareness and create educational materials around myocarditis, as well as fund new and local research for the prevention and treatment of myocarditis, especially in paediatric patients younger than 6 months old. The Foundation also offers a number of support mechanisms to assist families who are faced with the stress of a loved one being treated for myocarditis or for those who have lost a loved one to the disease.

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nutrients it needs. The organs particularly affected in heart failure are the kidneys, the liver and the brain.

There are currently no medical treatments to prevent or cure myocarditis.

## What causes myocarditis?

Viruses are the leading cause of myocarditis in infants and children. It can be the virus itself that attacks the heart, or the immune system's defence against the virus that causes heart damage.

Viruses that can cause myocarditis include Enterovirus, specifically Coxsackie B, Adenovirus, HIV, Parvovirus as well as hepatitis B and C.

Other causes include:

- bacterial or fungal infection
- a chest infection
- an auto immune disease (when a person's own immune system attacks their body)
- a reaction to medication
- often the cause is unknown.

## Myocarditis symptoms

Myocarditis in children and infants has vague symptoms ranging from mild flu-like symptoms to sudden death.

The most common symptoms include:

- malaise
- poor appetite
- chronic cough or wheezing
- increasing difficulty breathing
- low blood pressure
- cool extremities
- decreased urine output



## Treatment options

There is no prevention or cure for myocarditis, especially in newborns, so supportive care is currently the primary treatment for the disease. Infants and children will require hospitalisation for the management of heart failure symptoms and abnormal heart rhythms called arrhythmias. Treatment usually consists of administration of intravenous cardiac medicines to support the work of the heart, although a temporary pacemaker may also be necessary. In many cases, children will need to be put onto a ventilator (breathing machine) to support the additional work the heart is doing to support breathing. In severe cases, extracorporeal membrane oxygenation (ECMO) may be necessary to allow the heart to recover. This treatment option mostly serves as a bridge to heart transplantation.

Once the acute phase has passed, surviving patients may recover completely or have long term heart problems. A heart transplant may offer the best chance for long term survival when there is progressive dilated cardiomyopathy with declining cardiac function.

## Prognosis for infants and children

While some children recover completely from myocarditis, or with no serious consequences from the disease, severe cases of myocarditis – despite optimal medical interventions – are linked to high mortality rates around the world.

