

Heart Conditions, Nonstructural

What are some common characteristics of children who have heart conditions or of heart conditions as children present with them?

- Children with heart conditions may have problems only intermittently or for a short period.
- These children often have pediatric cardiologists who help with their treatments in addition to a primary care provider in the medical home.
- These children seldom require other special therapists to be involved in their care, but the specifics of the child's situation should be discussed with parents/guardians.
- This Quick Reference Sheet will provide information on
 - Kawasaki disease
 - Arrhythmia
 - Hypertension (high blood pressure)
 - Cardiomyopathy

Kawasaki disease

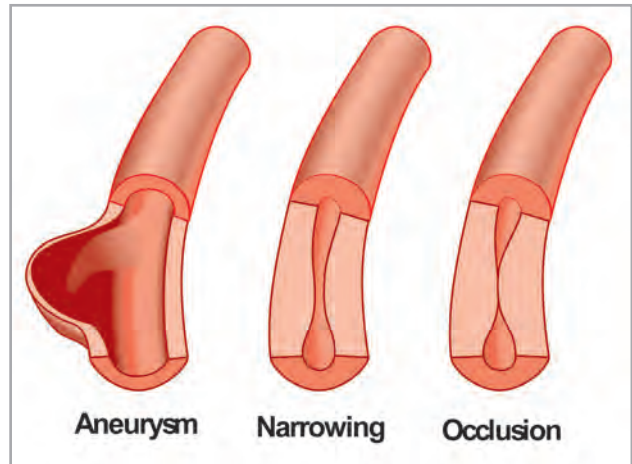
What is Kawasaki disease?

- Kawasaki disease is a condition in which the blood vessels become inflamed, especially in the heart where the coronary arteries supply blood to the heart muscle.
- Children with early-onset Kawasaki disease usually have high fever, red eyes, and swollen hands and lips that become cracked as they heal.
- They can also have a rash, a swollen mouth and tongue, and swollen lymph nodes.
- This disease is not well understood, and its cause is unknown. It can be very tricky to diagnose because there is no test to specifically diagnose the disease.
- Children are usually hospitalized when they have the acute disease, but some of the most serious complications can happen in the recovery stage, during the month or two after the disease begins. At that time, the coronary arteries can get weak spots that balloon out and cause aneurysms (see second figure to the right).
- Fortunately, even though Kawasaki disease is not well understood, it can be treated. Many of the complications can be prevented with treatment and monitoring. Often, children completely recover from Kawasaki disease.



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Child with Kawasaki disease with striking facial rash and erythema of the oral mucous membrane



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Kawasaki disease can cause aneurysms to form in blood vessels.

How common is it?

Approximately 4,000 children in the United States are diagnosed as having Kawasaki disease every year, and most are younger than 5 years.

Who might be on the treatment team?

- Primary care provider in the medical home.
- A pediatric cardiologist and the cardiologist's team will be involved in the acute phase and may continue to follow the child depending on his or her recovery.

Heart Conditions, Nonstructural *(continued)*

What adaptations may be needed?

Medications

- Children recovering from Kawasaki disease may need to take low-dose aspirin for a while, until it is certain that they recovered completely.
 - Aspirin may cause stomach irritation.
 - Parents/guardians should be notified immediately if blood is visible when the child has a bowel movement or vomits.
 - Aspirin is given to prevent blood clots, so the child might bruise more easily or bleed more if cut.
- All staff who will be administering medication should have medication administration training (see Chapter 6).
- Children recovering from Kawasaki disease who are on aspirin therapy are at higher risk for influenza and chickenpox because of the risk of Reye syndrome, a serious illness that causes liver and brain dysfunctions. All children and staff should be vaccinated against chickenpox and influenza, but this step is especially important for children who are on aspirin therapy.
- **Vaccination.** Two of the medications used to treat Kawasaki disease in the hospital, called *gamma globulin* and *immune globulin*, can interfere with the effectiveness of live-virus vaccines such as the measles, mumps, rubella and varicella (chickenpox) vaccines, and those vaccines may need to be delayed for a period. The children should have a note from their primary care provider and should be vaccinated by 1 year after administration of the gamma or immune globulin.

Dietary Considerations

Usually, no special diet is needed.

Physical Environment and Other Considerations

Most children with Kawasaki disease usually recover completely and need no special adaptations.

What should be considered an emergency?

Emergencies are seldom a problem because of recovery, but if the child has a complication, it may present as chest pain or paleness.

What are some resources?

- American Heart Association:
www.americanheart.org, 1-800-AHA-USA-1
(1-800-242-8721)
- Kawasaki Disease Foundation:
www.kdfoundation.org

Arrhythmia

What is an arrhythmia?

- An arrhythmia is an abnormal heartbeat. The heart normally sends a regular electrical signal that makes the heart muscle contract in a proper order. If that signal order is not working well, the heart can have an irregular beat. An arrhythmia may occur for a variety of reasons, some more serious than others.
- This disorder may interfere with the heart's ability to pump blood.
- The irregularity in the heartbeat may cause perceived sensations called *palpitations*, which can be difficult sensations for a child to describe.
- Many people experience minor palpitations that are usually not serious. They can be caused by stress or substances such as caffeine and cold medications.
- Some forms of arrhythmia are very serious and need immediate treatment. Some of the more serious types of arrhythmias can be caused by conditions such as prolonged QT interval, cardiomyopathy, sick sinus syndrome, heart block, and Wolf-Parkinson-White syndrome.
- Children who have congenital heart disease may have arrhythmias.
- Arrhythmias that occur in the top chambers of the heart are called *atrial*, such as atrial fibrillation, atrial flutter, and premature atrial contractions.
- Arrhythmias that occur in the bottom heart chambers are called *ventricular*, such as ventricular tachycardia and premature ventricular contractions.
- These conditions may be treated with medication, surgical procedures of the electrical conduction system of the heart, or pacemakers.

Who might be on the treatment team?

- Primary care provider in the medical home
- Pediatric cardiologist and the cardiologist's team

What adaptations may be needed?

Medications

- Several different medications may be prescribed to prevent an irregular heartbeat. A Care Plan that outlines the medications and their potential side effects should be provided.
- All staff who will be administering medication should have medication administration training (see Chapter 6).
- Avoid administering over-the-counter medications, unless specifically approved by the child's doctor.

Heart Conditions, Nonstructural *(continued)*

Dietary Considerations

- Avoid giving the child caffeine-containing food and drinks, such as coffee, tea, and chocolate, unless approved by the child's doctor.

Physical Environment and Other Considerations

- Because there are many different types and causes of arrhythmia, it is important to customize the child's Care Plan to match the specific situation.
- Activity is usually unrestricted, but the child should be allowed to rest if needed.
- Some arrhythmias require restriction of certain athletic activities in schools.
- Some pacemakers have specific instructions, such as avoiding strong magnets or certain wireless devices.

What should be considered an emergency?

- Symptoms such as paleness, sweating, dizziness, fainting, chest pain, and shortness of breath may be serious.
- A very rapid pulse or a very slow pulse. Learn to monitor a pulse.
- Call emergency medical services (EMS) (911) immediately if the child is having serious symptoms.
- Sometimes, techniques to slow the child's heart rate can be taught.
 - Have the child lie down or sit down.
 - Apply ice or cold water to the child's face.
 - Have the child take a very deep breath.
 - Have the child take a breath, pinch his or her nose, close his or her mouth and then bear down as if having a bowel movement without exhaling for as long as possible, and then relax.
- Specific training is needed in these techniques that should be used only as a temporary measure until EMS (911) first responders arrive.
- Pacemakers can be checked by phone if needed.
- The program may need to have a pediatric AED (automated external defibrillator) available with staff trained to use it.

What types of training or policies are advised?

- Pediatric first-aid training that includes CPR (management of a blocked airway and rescue breathing) with instructor demonstration and return demonstration by participants on a mannequin. *Pediatric First Aid for Caregivers and Teachers* is a course designed to teach these skills (www.pedfactsonline.com/about.aspx).

- If a child with an arrhythmia is enrolled, it is important to have a responsible caregiver who can competently provide CPR at all times wherever the child is.
- A CPR-trained person should be available during transport to and from the program if applicable.
- Training on using an AED or on techniques to slow the heart rate may be needed.

Hypertension (high blood pressure)

What is hypertension (high blood pressure)?

- Hypertension (high blood pressure) is much less common in children than in adults.
- High blood pressure in younger children usually has another cause, such as a kidney problem or another medical condition. (See *Kidney and Other Urinary Tract Problems* [page 157] for further details.)
- Older children may develop *essential hypertension*, which is high blood pressure without a known cause, especially if they have a strong family history of it.

Who might be on the treatment team?

- Primary care provider in the medical home.
- A pediatric cardiologist and the cardiologist's team may be involved.
- Pediatric nephrologists (kidney specialists) may be involved if the kidney is causing the high blood pressure.

What adaptations may be needed?

Medications

- Many types of medications are used to control high blood pressure. The Care Plan should outline any potential complications of those medications.
- Staff who will be administering medications should have medication administration training (see Chapter 6).
- Avoid administering over-the-counter medications, unless specifically approved by the child's doctor.

Dietary Considerations

- Children with high blood pressure may be on a low-salt diet.
- Children should avoid products that contain caffeine, such as chocolate, tea, and coffee.

Physical Environment and Other Considerations

If a child in the child care center or school has hypertension, ask the parents/guardians for information specific for that child.

Heart Conditions, Nonstructural *(continued)*

Cardiomyopathy

What is cardiomyopathy?

- Cardiomyopathy is the name for an abnormality or a weakness of the heart muscle. It can have many different causes and many different outcomes depending on the cause.
- Children with cardiomyopathy are at an increased risk for arrhythmias, heart failure, and sudden death.

How common is it?

There are about 1,000 to 5,000 new cases per year in the United States.

Who might be on the treatment team?

- Primary care provider in the medical home
- Pediatric cardiologist and the cardiologist's team

What adaptations may be needed?

Medications

- Special medications may be needed, depending on the child's specific problem.
- Staff who will be administering medications should have medication administration training (see Chapter 6).

Physical Environment and Other Considerations

An AED (automated external defibrillator) should be available.

What should be considered an emergency?

- Cardiomyopathy is relatively uncommon, but it is a condition that should have a Care Plan with emergency measures outlined in it.
- Activity restrictions may be advised, depending on the situation.
- Symptoms such as paleness, sweating, dizziness, fainting, chest pain, and shortness of breath may be serious.
- Call emergency medical services (911) immediately if the child is having serious symptoms.

What types of training or policies are advised?

- Pediatric first-aid training that includes CPR (management of a blocked airway and rescue breathing) with instructor demonstration and return demonstration by participants on a mannequin. *Pediatric First Aid for Caregivers and Teachers* is a course designed to teach these skills (www.pedfactsonline.com/about.aspx).
- If a child with an arrhythmia is enrolled, it is important to have a responsible caregiver who can competently provide CPR at all times wherever the child is.
- A CPR-trained person should be available during transport to and from the program if applicable.
- Training on using an AED or on techniques to slow the heart rate may be needed.
- Training on how to take a pulse should be conducted.

What are some related Quick Reference Sheets?

- Heart Conditions: An Overview (page 137)
- Heart Defects, Structural (page 143)
- Kidney and Other Urinary Tract Problems (page 157)

What are some resources?

- American Heart Association: www.americanheart.org, 1-800-AHA-USA-1 (1-800-242-8721)
- Congenital Heart Information Network: <http://tchin.org>