Wolff-Parkinson-White Syndrome (WPW)

How Does the Heart Work?
The heart is an electrical pump. There is a natural pacemaker that controls how fast the heart beats. This tells the upper (atria) and lower (ventricle) chambers of the heart when to pump blood to the lungs and body.

What is WPW?
In WPW, there is an extra electrical system in the heart. This may cause the heart to beat very fast.

How Will I know if My Child has WPW?
Many times your child has no signs of WPW. It may be found on a routine electrocardiogram (ECG), described below. Sometimes your child has a very fast heart rate called supraventricular tachycardia (SVT).

Common signs and symptoms of WPW
Infants may be cranky, pale, tired and have a hard time eating.

Older children may say:

“My chest hurts”
“My heart is beating fast”
“I feel dizzy”
“It’s hard to breathe”

Often your child’s pulse feels too fast to count. Fainting may happen, but is rare.
What Type of Tests Can I Expect?

An ECG is a test that records the electrical activity of the heart. The purpose for doing an ECG is to show us if the rhythm is coming from a normal or abnormal part of your child’s heart. In WPW, the ECG shows a delta wave. The picture with the arrow on the next page shows some of the electricity going through the extra pathway, and some going through the heart’s normal AV node. This is called pre-excitation.

Normal ECG

![Normal ECG](image)

ECG with WPW

![ECG with WPW](image)

If an ECG is done while your child is having an episode, it normally shows a heart rate over 220 beats per minute in babies and over 200 beats per minute in children.

If the episodes are short, a heart rate and rhythm recording device, called a holter monitor, can be worn at home or school to show the heart rhythm during these times. It shows a continuous 24 hour recording of the heart rate and rhythm.

A 30-day cardiac event monitor is a device that can be used for a full month. You or your child push a button to start it during times your child has symptoms. The monitor can then document the heart rate and rhythm during these times.

An echocardiogram is a test that uses sound waves to take pictures of the structure and function of your child’s heart. This includes looking at the valves and chamber sizes of your child’s heart.
Children with WPW have a very small risk of a fast and dangerous heart rate that does not allow time for the ventricles to relax and fill with blood. This tends to happen with exercise and results in fainting. A **holter monitor** can tell us if your child is at risk for this rare life threatening arrhythmia. Older children may be asked to do an **exercise treadmill test** to check for this.

[uwhealth.org/kidshearts](http://uwhealth.org/kidshearts) has more information and videos of these tests.

### How is WPW Treated?

Some children do not need treatment. Your child will be seen in the cardiology clinic as needed.

### Medicines

The most common medicine used to treat WPW is a beta-blocker. A beta-blocker slows your child’s heart rate and makes it less likely for him to have a very fast heart rate. If your child has an episode of very fast heart rate there are things to try at home to slow it down. These are called vagal maneuvers. They work on the vagal nerve which can slow the fast heart rate. If these do not work after about 15 minutes, or if at any time your child is not feeling or looking well, take your child to the emergency room.

### Vagal Maneuvers for Infants

- Check a rectal temperature
- Fill a small bag with an ice and cold water and hold it on your baby’s face for 5-10 seconds. Be careful not to cover his mouth so he can still breathe

### Vagal Maneuvers for Older Children

- Bear down (as if trying to have a bowel movement)
- Close lips around your thumb and blow hard for 10-15 seconds
- Stand on your head against a wall for several seconds with the help of an adult
Interventional Treatment/Electrophysiology study (EP study)

EP studies can be done with an ablation procedure to cure WPW and SVT. This is done under general anesthesia as an outpatient. Small flexible tubes, called catheters are placed in your child’s groin area and float through the veins to the heart. These catheters can find electrical signals coming from the heart and the abnormal pathway in more detail than an ECG. The pathway is found by mapping the electrical signals in the heart. Freezing (cryoenergy) or heating (radiofrequency energy) can be applied to the pathway to get rid of (or ablate) the abnormal pathway. If this treatment is needed for your child you will talk about this with your child’s heart doctor in more detail.

Who Do I Call With Questions?

Your child’s doctor, nurse or clinic staff can answer any questions. Our phone number is (608) 263-6420.