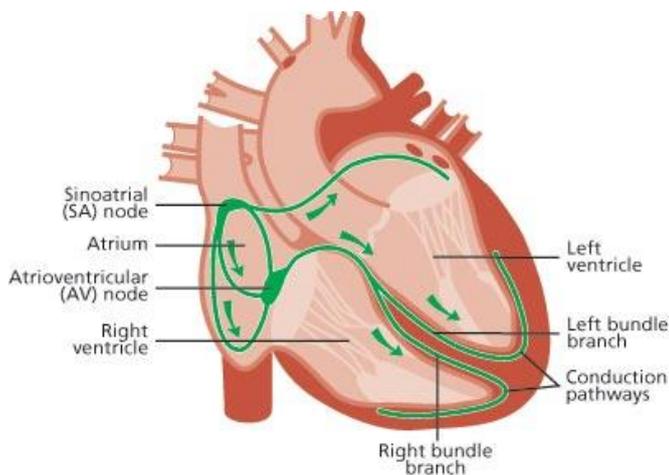


What does having an arrhythmia mean? Information for young people

Arrhythmias are abnormal heart rhythms, which can prevent the heart pumping efficiently. This information sheet from Great Ormond Street Hospital (GOSH) explains how the heart beats normally, what happens when it starts to beat abnormally and how it can be treated.

The heart has an electrical system that makes it pump. An electrical impulse starts in a specialised area of heart tissue in the right atrium called the sinoatrial (SA) Node. It then passes from the right atrium through to the ventricles via the atrioventricular (AV) node. As the impulse passes through the atrium it makes it pump blood into the ventricle. It has the same effect when it passes through the ventricle.



This electrical impulse is something that happens naturally. You can't feel it and the electrical impulses travel through the heart each time it

beats. It can go wrong though, which is what causes arrhythmias.

What is an arrhythmia?

The word 'arrhythmia' just means 'abnormal heart rhythm'. As the electrical impulse is not normal it can make the heart beat irregularly or at the wrong rate and so pump less efficiently.

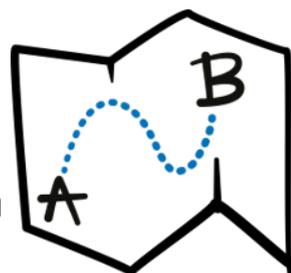
It can make the heart beat too fast, so the ventricles don't have time to fill up with blood before it's pumped out again. If the heartbeat is too slow, not enough blood is pumped out in time for the body's needs.

Arrhythmias affect around two in every 100 children of school age.

What does an arrhythmia feel like?

The most common symptoms include:

- Heart flutters
- Dizziness
- Fainting
- Tiredness
- Weakness



Most types of arrhythmia have these symptoms, but you won't always feel all of them all of the time. Nearly all the symptoms are caused by the heart not pumping enough blood round the body rather than the arrhythmia itself.

The only sign from the arrhythmia itself is a 'fluttering heart'. You're unlikely to feel these symptoms all the time.

How is an arrhythmia diagnosed?

The main test used to diagnose arrhythmia is an electrocardiogram (ECG). This records your heartbeat using a machine. There are various different types and your clinical team will use the results from all of them to build up a picture of how your heart is working. The different types are:

Resting ECG

This is an ECG where you are lying down. The technician will put some stickers on your chest, arms and legs and then record your heartbeat for a minute or so.

Exercise or stress ECG

This is similar to the resting ECG but you will be running on a treadmill or peddling on an exercise bike during the test. This version shows up any heart rhythm problems that don't show up when you're resting.

Longer term ECG

Long term monitors can be worn from 24 hours to two weeks. Your clinical team will decide which type is best for your symptoms. The devices work by applying stickers to your chest and either record every heart beat you have or record 'events' when you press an activator button. These will be explained to you when you have this applied.

Electrophysiology (EP) study

This is a method of recording the heart rhythm from inside of your heart. You come into hospital for the day and have a general anaesthetic which makes you go to sleep. Once asleep the doctors feed a soft, thin wire from the veins in the top of your legs to your heart. Once there they are able to study your hearts electrical conduction in a very detailed way. For more information please see our EP Study leaflet.

Once your clinical team has the results of all of these tests, they will be able to build up a picture of how your heart is working, and whether the electrical impulses are behaving normally. It also helps to plan your treatment for now and in the future, and lets us compare results later on to see how well treatment is working.

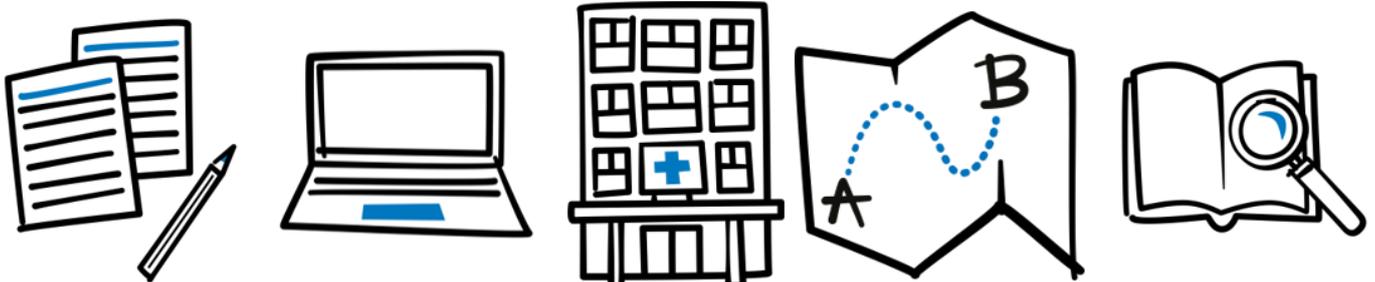
Types of arrhythmia

There are various types of arrhythmia, called different things depending on the area of the heart affected. Generally, arrhythmias are called either 'bradycardia' (slow) or 'tachycardia' (fast).

The most common arrhythmias that affect children and young people are supraventricular tachycardias (SVT) including Wolff-Parkinson-White (WPW) syndrome. In these conditions, there is an extra (accessory) pathway between the atria and the ventricles. This allows the electrical signal to re-enter the atria so that the signal repeats over and over which causes the heart to beat faster than usual. Symptoms include palpitations, shortness of breath, chest pain, dizziness and sometimes fainting. An episode can last for a few seconds to several hours.

Other types of arrhythmia include:

- Sinus tachycardia – the SA node is sending out signals faster than normal



- Premature ventricular beats – the ventricles send out extra beats causing the ventricles to pump out of time with the atria
- Sick sinus syndrome – the SA node sends out signals irregularly some may be too fast or too slow
- Ventricular fibrillation – the ventricle sends out electrical impulses too fast and irregularly so the ventricles cannot fill up between each beat or pump effectively

How will it be treated?

There are various options for treatment, which the clinical team will discuss with you and your parents. Some of them might not be suitable everyone, but here are a few details about each option:

Regular monitoring

In some people, arrhythmia is discovered during a physical examination when there have not been any symptoms previously. Other people may develop symptoms but only very rarely. Where symptoms do not happen very often, do not last long when they happen and are generally causing few problems, the doctor may suggest monitoring rather than active treatment. This would involve regular tests or investigations to ensure that the arrhythmia is not getting any worse.

Medicines

There are various medicines to help arrhythmias. The ones most commonly used at GOSH include amiodarone, flecainide and medicines from a group called beta blockers. These work by treating the individual cells in the heart muscle so that they

are less likely to cause arrhythmia. Most of the medicines only need to be taken once or twice a day, and shouldn't cause any side effects once you're used to them.

Ablation

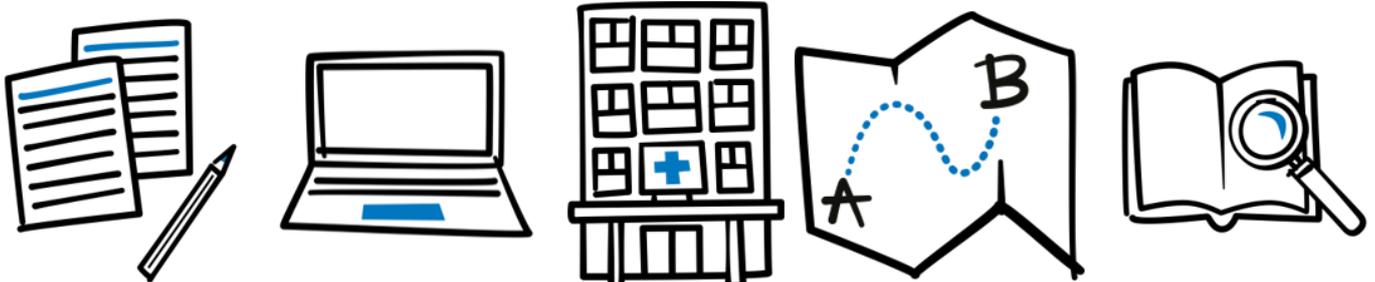
During an electrophysiology (EP) study, the doctor puts a catheter (thin, plastic tube) into a vein at the top of your leg and threads it up through your blood vessels until it reaches the heart. The doctor can then find the site causing the abnormal electrical impulse and destroy it by heating (radiofrequency) or freezing (cryotherapy). For more information about EP studies, please ask for our information sheet.

Will I get better?

The treatments are usually very successful, but it may take some time to find the right one for you.

If you are taking medicines, it can take a while to get the dose right, so that the medicines work well but give you very few side effects. Some types of arrhythmia may be life-threatening so as well as medicines and/or ablation, the doctor may suggest having an implantable loop recorder, pacemaker or implantable cardioverter defibrillator (ICD).

You may need to come back to GOSH for check-ups. In between clinics, you can always call us for advice or if you have any questions. Having arrhythmia should not have too great effect on your day to day life, but it may make some activities less advisable. If you have any questions about specific sports or activities which should be avoided, please ask the clinical team.



Any questions?

You can get in touch with the Arrhythmia Service on 020 7405 9200 extension 5298, email them on gos-ecg.tr.gosh@nhs.net or contact them via MyGOSH once you have registered. More information about MyGOSH is at www.gosh.nhs.uk/your-hospital-visit/mygosh



Arrhythmia Alliance – call 01789 867 501 (24 hour helpline) or visit their website at www.heartrhythmcharity.org.uk

British Heart Foundation – call their Heart Helpline on 0300 330 3311 or visit their website at www.bhf.org.uk

