



Understanding your child's heart

Atrial septal defect



About this factsheet

This factsheet is for the parents of babies and children who have an atrial septal defect (ASD).

It explains,

- what an atrial septal defect is and how it is diagnosed
- how an atrial septal defect is treated
- the benefits and risks of treatments
- where to go for more support.

This factsheet does not replace the advice that doctors or nurses may give you, but it should help you to understand what they tell you.

The normal heart

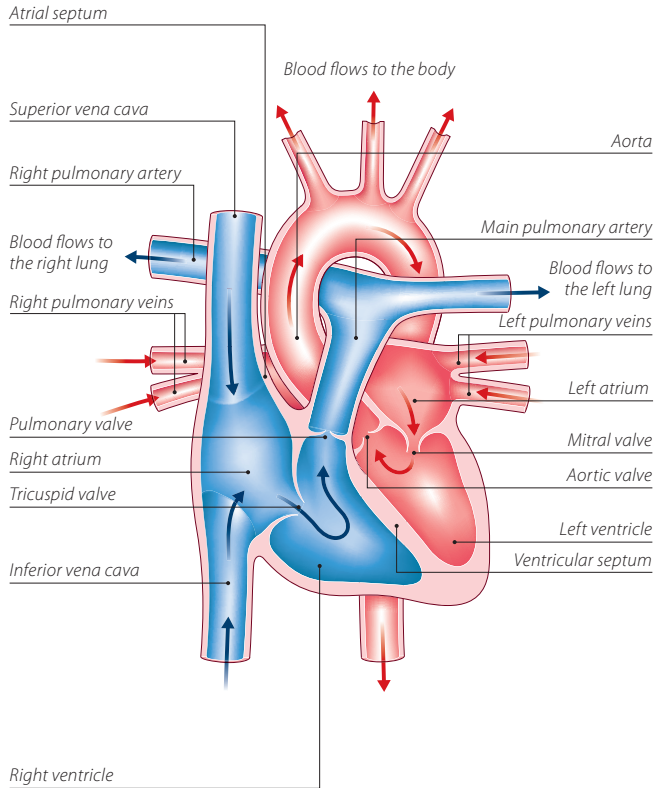
The heart is a muscular pump which pumps blood through the body and lungs. There are four chambers in the heart. The two upper ones are called the right atrium and left atrium. These are separated by a wall called the atrial septum. The two lower chambers are called the right and left ventricles, and are separated by a wall called the ventricular septum.

On each side of the heart, blood passes from the atrium, through a heart valve – the tricuspid valve on the right, and the mitral valve on the left – into the ventricle. The ventricles are the main pumping chambers of the heart. Each ventricle pumps blood out into an artery. The right ventricle pumps blood – blue in the illustration – into the pulmonary artery (the blood vessel that takes blood to the lungs). The left ventricle pumps blood – red in the illustration – into the aorta (the blood vessel that takes blood to the rest of the body).

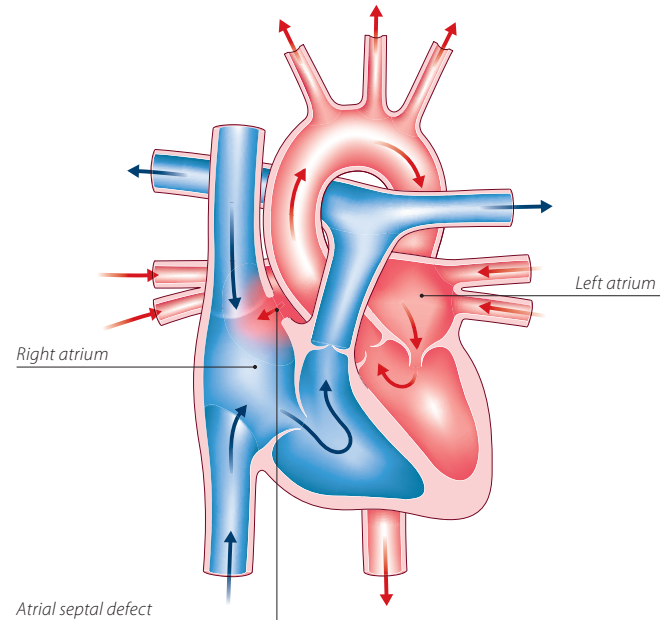
Blood flows from the right side of the heart, through the pulmonary valve into the pulmonary artery, and then to the lungs where it picks up oxygen. The oxygen-rich blood flows back into the left side of the heart through the pulmonary veins.

The left ventricle then pumps the oxygen-rich blood out of the heart through the aortic valve and into the aorta, and all around the body. The blood then returns to the right side of the heart through two main veins – one from the upper body (superior vena cava), and the other from the lower body (inferior vena cava).

The normal heart



The heart with atrial septal defect



What is atrial septal defect?

An atrial septal defect (known as ASD) is a hole between the two upper chambers (atria) of the heart. It allows blood from the left atrium to pass to the right atrium.

Some ASDs are very small and may never cause any problems or require treatment. However, a large ASD can result in the right side of your child's heart being overloaded with blood. This can cause congestion - a build-up of blood back to the lungs.

ASD may only cause mild symptoms in young children, such as breathlessness when they are active. However, if a large ASD is left untreated over a period of many years, it will eventually lead to permanent damage to the heart and sometimes to the lungs too. So it is very important that a large ASD is treated before your child's heart or lungs become permanently damaged.

What causes ASD?

ASD is a type of congenital heart disease. Congenital heart disease is an abnormality of the heart that developed before birth. There are lots of different types of congenital heart disease and ASD is one of them.

We know that in most cases of congenital heart disease something went wrong in the early development of the baby in the womb. In most cases we don't understand why the baby's heart did not develop normally.

Why me? Why my child?

Anger, disappointment, fear and guilt are all normal feelings to have when you are told that there is something wrong with your child.

Many families ask themselves what they did that could have caused their baby's heart to develop with heart disease. But the reality is that it can happen to anyone. In fact, congenital heart disease happens in about 1 in every 145 births.

How is ASD diagnosed?

Usually the only test that is needed to make the diagnosis is an echocardiogram, a painless ultrasound scan of the heart.

Because babies and young children often show no symptoms, ASD may not be found until they are older. It's not unusual for ASD to be diagnosed in older children, teenagers or even in adults.

How is an ASD treated?

ASD is treated with:

- keyhole treatment, or
- open heart surgery.

The aim of both these treatments is to close the ASD hole and stop blood from the left atrium of the heart passing to the right atrium.

The type of treatment will depend on the size of the ASD and its exact position. Your child's paediatric cardiologist will talk to you about which type of surgery is best for your child.

"Keyhole" treatment for ASD

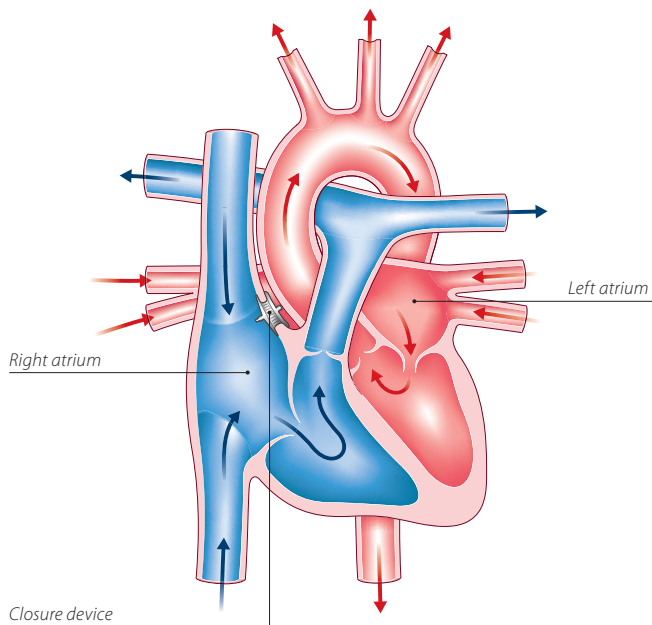
- Your child will be given a general anaesthetic.
- A small tube will be inserted into your child's food pipe (oesophagus) through their mouth.
- The doctors will use this tube to do a scan called a transoesophageal echo to see the heart, and in particular the ASD, clearly.
- Then, a long thin tube called a catheter will be inserted into a vein at the top of their leg and guided to their heart.
- The ASD hole is closed using a device that looks like two buttons sewn together. The device is folded up and pushed through the catheter tube to the heart.
- Once it is in the correct position, the device is unfolded so that the buttons sit either side of the ASD hole and close it.
- The catheter will then be removed.

The device will stay inside your child's heart and become covered over by their own tissue during the healing process.

After the operation, you will need to take your child to the outpatient department to see the paediatric cardiologist for a check-up about a month later.

Your child will need to take aspirin for a few months after the treatment. This reduces the risk of a blood clot forming on the device while it is healing over.

The heart with a closure device in place



What are the risks of the keyhole treatment?

Keyhole treatment to repair an ASD is usually very successful and carries a very low risk of death. Most children will not experience any major complications.

There is a small risk of bleeding around the heart and a small risk that the device could move out of place after the surgery. If this happens your child may need an operation to remove the device and to close the hole at the same time.

Sometimes the device might not completely close the hole. If this happens your child may need another operation to close the hole around the device.

There is a very small risk that the device could become infected and an operation would be needed to remove it.

There is also a very small risk of blood clots forming inside the heart during the surgery which could cause a stroke, but this is very rare.

The risk of dying as a result of this treatment is very small – around 1 child out of every 1000 who has the treatment dies.

Your doctor will discuss these risks with you before your child's treatment.

Headaches after ASD closure

Some people who suffered from migraines in the past find that their migraine is worse for a few months after keyhole closure of their ASD.

However, some people find that their migraine disappears after keyhole treatment. The reasons for this are not fully understood at the moment.

Open-heart surgery

In some cases open heart surgery is required to close the ASD.

- Your child will be given a general anaesthetic.
- The surgeon will make a cut in their breastbone to get access to their heart.
- Their heart will be stopped and a 'heart-lung machine' will be used to take over the function of the heart and lungs.
- The surgeon will stitch the ASD closed.
- They will start the heart beating again and the heart-lung machine will be turned off.
- Your child's chest will be stitched closed.

After the operation your child will have a scar, usually in the middle of the chest along their breastbone. He or she will need to stay in hospital for a few days and return to the out-patient department a few weeks later for a check up.

What are the risks of open-heart surgery?

Open heart surgery to repair ASD is usually very successful and carries a very low risk of death.

There are small risks of complications such as brain damage, kidney damage, or serious lung diseases such as pneumonia. Your doctor will discuss these risks with you before your child's operation.

What happens as my child grows up?

Most children will remain completely well and lead a normal, active life after treatment. There is no need to restrict your child's physical activity and no special precautions are necessary.

About the British Heart Foundation

The British Heart Foundation is the nation's heart charity, saving lives through pioneering research, patient care and vital information.

What you can do for us

We rely on donations to continue our vital work. If you'd like to make a donation, please ring our Supporter Care team on **0844 847 2787**, contact us through our website at **bhf.org.uk/donate** or send it to us at the address on the back cover.

For more information

British Heart Foundation website

bhf.org.uk

For up-to-date information on heart disease, the BHF and its services.

Heart HelpLine

0300 330 3311

For information and support on anything heart-related.

www.yheart.net

A website for young people with heart conditions.

Other resources

Understanding your child's heart series

This factsheet is one of the titles in the Understanding your child's heart series. For a full list of booklets and factsheets available in this series, see our website **bhf.org.uk** or call the Heart HelpLine on **0300 330 3311** (local rate number).

Children with congenital heart disease (DVD)

Three families share their experiences from diagnosis to treatment, and staff at the Evelina Children's Hospital offer guidance on parents' common concerns.

Operation Fix-it

A short story book about eight-year-old Tom's experience in hospital for a heart operation. Prepares children for their hospital visit in an interesting and sometimes humorous way.

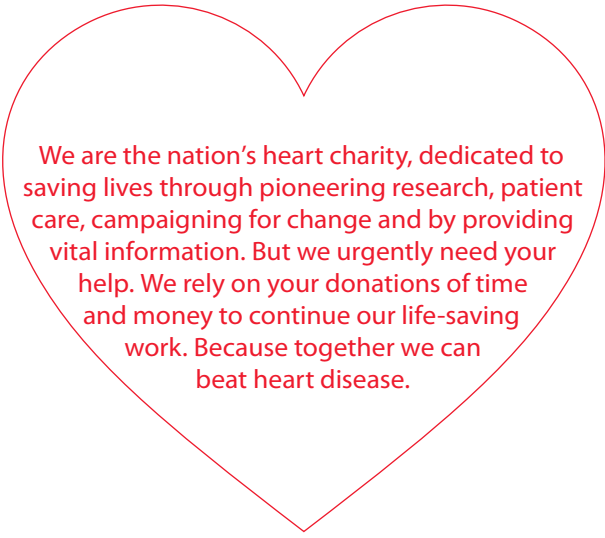
Physical activity – What if my child has a congenital heart condition?

This short booklet contains advice and information for parents and carers to help you make it easy and enjoyable for your child to be physically active.

To order any of our booklets:

- call the BHF Orderline on **0870 600 6566**
- email **orderline@bhf.org.uk**
- visit **bhf.org.uk/publications**

You can also download many of our publications from our website. For information on other BHF booklets and DVDs, ask for a copy of our heart health catalogue.



We are the nation's heart charity, dedicated to saving lives through pioneering research, patient care, campaigning for change and by providing vital information. But we urgently need your help. We rely on your donations of time and money to continue our life-saving work. Because together we can beat heart disease.

**bhf.org.uk/
publications**

 **Heart Helpline**
0300 330 3311
bhf.org.uk

Information & support on anything
heart-related. Phone lines open
9am to 5pm Monday to Friday.
Similar cost to 01 or 02 numbers.

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