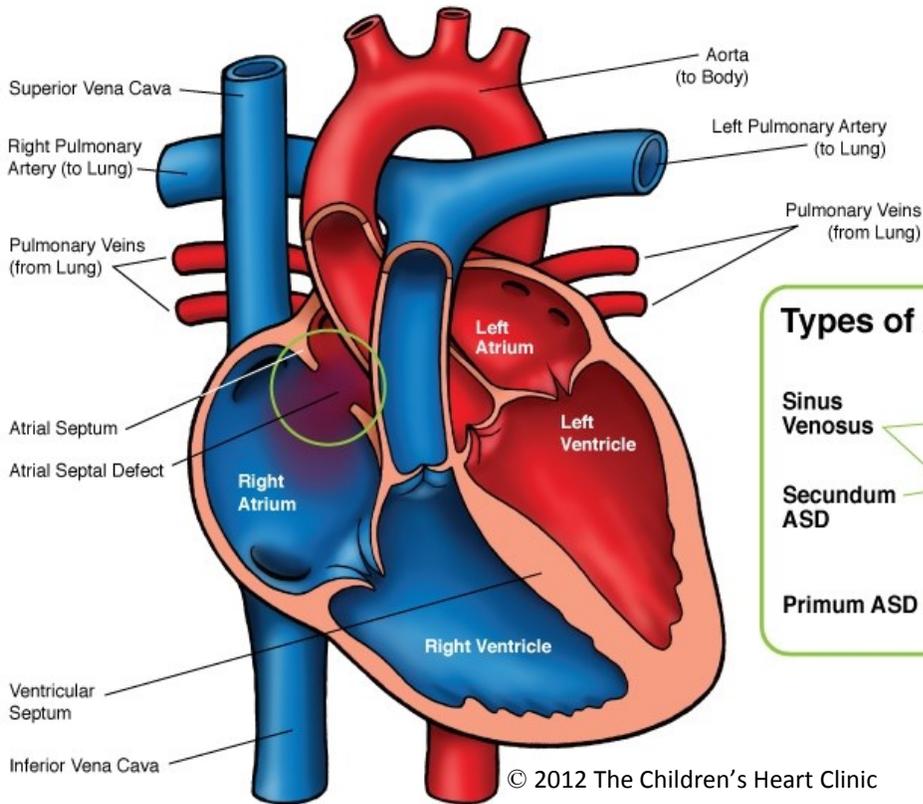


## Atrial Septal Defect (ASD)

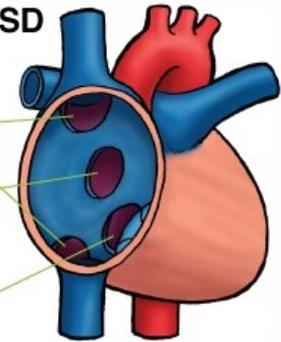


### Types of ASD

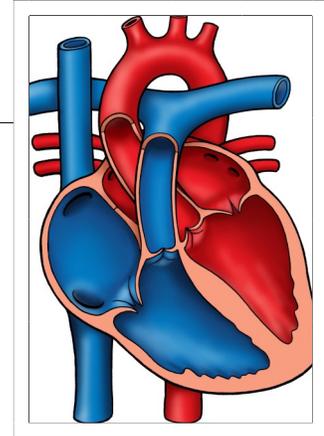
Sinus Venosus

Secundum ASD

Primum ASD



### Normal Heart



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### NOTES:

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## Atrial Septal Defect (ASD)

An atrial septal defect (ASD) is a hole between the top chambers of the heart (atria). This is very common in children with congenital heart defects (30-50%). An ASD is classified by its location on the atrial septum, which is the wall between the top two chambers of the heart. In most, blood will flow from the left to right side, which means oxygen saturations will be normal.

### Types:

- Secundum ASD (50-70%): This most common type is located in the upper, thicker part of the septum. Most close spontaneously without intervention.
- Patent foramen ovale (PFO): A PFO is a small hole in the upper part of the atrial septum and is a part of normal fetal circulation. A “foramen ovale” usually closes after birth. When it is present after birth it is called a PFO. It is present in 75% of newborns, which is considered a normal variant. Approximately 17-35% of adults have a PFO.
- Primum ASD (30%): This type is located in the lower, thinner part of the atrial septum near the tricuspid valve. Primum ASDs are usually a part of partial, or incomplete atrioventricular canal defects (see AVSD).
- Sinus venosus ASD (10%): Located in the atrial septum near either the superior or inferior vena cava. Defects near the superior vena cava (SVC) are commonly associated with partial anomalous venous return (see TAPVR).
- Unroofed coronary sinus: This is a hole between the atrium and coronary sinus. The coronary sinus returns “blue” deoxygenated blood from the heart back to the right atrium. Often a left sided SVC will be present.
- A “fenestrated” ASD is a defect that has many smaller holes.

### Physical Exam/Symptoms:

- Most children do not have any symptoms.
- Many children with ASDs will have a thin body habitus.
- Murmur: Grade 2-3/6 systolic ejection murmur heard best at left upper sternal border. Second heart sound (S2) is fixed and widely split. Diastolic rumble may be present. A murmur may not be audible in young infants.

### Diagnostics:

- Chest x-ray: A large heart with prominent pulmonary vascular markings may be present.
- EKG: Not used to diagnose. Patient may have evidence of right atrial enlargement.
- Echocardiogram: Diagnostic.

### Medical Management/Treatment:

- Most secundum ASDs and PFOs close spontaneously.
- ASDs can be closed surgically or with a device in the cath lab (see ASD repair).
- Medications may be needed to treat arrhythmias if they occur.
- Cardiology follow up is needed through childhood.

### Long-Term Outcomes:

- Normal life span and developmental outcomes in the absence of other congenital heart disease.
- Atrial arrhythmias (flutter or fibrillation) may occur in adults with or without surgery.
- Occasionally associated with varying degrees of heart block.