

Ventricular Septal Defect (VSD)

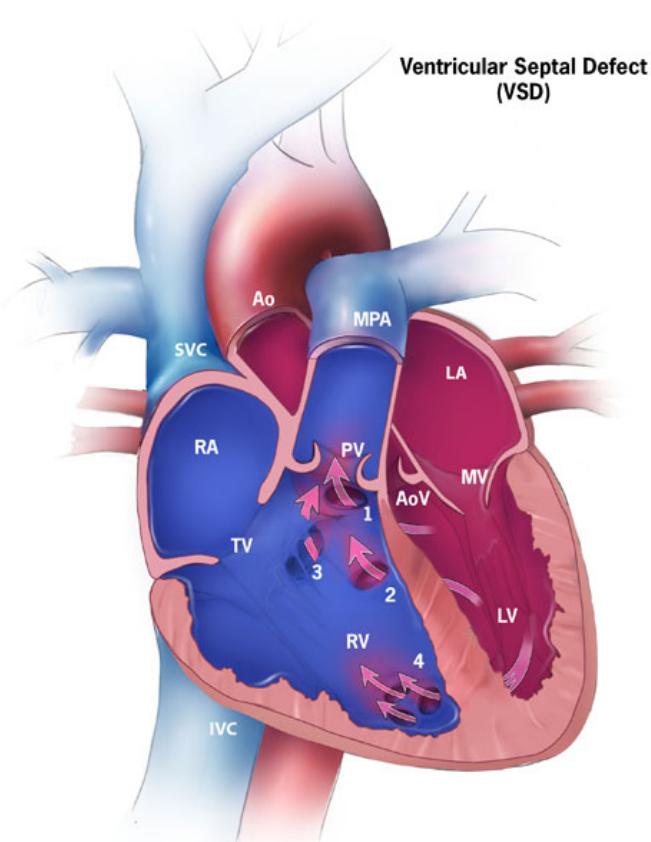
What is it?

Ventricular septal defect (pronounced ven-tric-u-lar sep-tal de-fect) is a congenital heart defect in which there is a hole in the heart. **Congenital** means present at birth. The wall that separates the chambers of the heart is called a **septum**, and the lower chambers of the heart are called **ventricles**. The wall that separates the ventricles is called the **ventricular septum**. When a hole is present in the ventricular septum, there is a

ventricular septal defect (VSD), which happens when the wall does not form properly and leaves a hole. Normally, the right side of the heart pumps oxygen-poor blood to the lungs, and the left side of the heart pumps oxygen-rich blood to the body. When a baby has a VSD, blood flows from the left ventricle through the VSD to the right ventricle and into the lungs. This means extra blood will be pumped into the lungs, making the heart and lungs work harder. Over time, it can lead to other problems including heart failure, high blood pressure in the lungs, irregular heart rhythms, or stroke.

There are many types of VSDs based on the location of the hole:

- **Conoventricular VSD:** The hole is where the wall should meet below the pulmonary and aortic valves.
- **Perimembranous VSD:** The hole is in the upper part of the wall.
- **Inlet VSD:** The hole is in the wall near where the blood enters the ventricles through the tricuspid and mitral valves.
- **Muscular VSD:** The hole is in the lower, muscular part of the wall. This is the most common type.



RA. Right Atrium
RV. Right Ventricle
LA. Left Atrium
LV. Left Ventricle

SVC. Superior Vena Cava
IVC. Inferior Vena Cava
MPA. Main Pulmonary Artery
Ao. Aorta

TV. Tricuspid Valve
MV. Mitral Valve
PV. Pulmonary Valve
AoV. Aortic Valve

1. Conoventricular, malaligned
2. perimembranous
3. inlet
4. muscular

Image courtesy of the Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities

How common is it?

About 4 in every 1,000 babies are born with a VSD in the United States each year.

What causes it?

The cause of VSD for most babies is unknown. There may be many factors that cause VSD, but more research is needed to understand the exact cause.

How is it diagnosed?

Ventricular septal defect is usually diagnosed after birth. The size of the hole influences the symptoms, which may or may not be present after birth. Symptoms that can occur include shortness of breath, fast or heavy breathing, sweating, and poor feeding. A doctor might hear a murmur, or a “whooshing” sound, during a physical examination. If a doctor hears a murmur or sees other signs of heart defect, he or she may request a test called an **echocardiogram** to confirm the diagnosis.

How is it treated?

Treatment for a VSD depends on the size of the hole. Many VSDs are small and may close on their own. If the hole is small and not causing any problems, the doctor might just check on it regularly to make sure it closes. If the hole is large, though, the doctor might recommend surgery to close it. Regular visits to a **cardiologist**, a doctor who specializes in the heart, will be necessary to avoid problems and watch for any other health conditions.

For more information:

American Heart Association

http://www.heart.org/HEARTORG/Conditions/CongenitalHeartDefects/AboutCongenitalHeartDefects/About-Congenital-Heart-Defects_UCM_001217_Article.jsp#.Wv2YtPnwbc

Centers for Disease Control and Prevention

<https://www.cdc.gov/ncbddd/heartdefects/ventricularseptaldefect.html>

National Heart, Lung, and Blood Institute

<https://www.nhlbi.nih.gov/health-topics/congenital-heart-defects>

