

Transposition of Great Arteries/Vessels (TGA/TGV)

What is it?

Transposition of great arteries (pronounced trans-poh-ZI-shun) is a birth defect of the heart. Normally, there are two separate blood vessels leaving the heart: the aorta and the pulmonary artery. The **aorta** typically carries oxygen-rich blood to the body, while the **pulmonary artery** typically carries oxygen-poor blood to the lungs. In babies who have transposition of great arteries or vessels (TGA/TGV), the aorta and pulmonary artery are **transposed** (switched), so the aorta carries oxygen-poor blood to the body and the pulmonary artery carries oxygen-rich blood back to the lungs. Because the aorta is carrying

oxygen-poor blood to the body, babies with TGA/TGV usually have **cyanosis**, blue skin and lip color due to the lack of oxygen.

Most babies with TGA/TGV survive because they have another heart defect that allows oxygen-rich blood to reach the body. These additional heart defects may include an **atrial septal defect (ASD)** or a **ventricular septal defect (VSD)**. An **atrial septal defect** is an opening between the two upper chambers of the heart, and a **ventricular septal defect** is an opening between the two lower chambers of the heart. These defects will not fully support life for an extended period of time, though, so treatment will be needed soon after birth. TGA is considered a **critical congenital heart defect**, meaning it can cause serious health problems or even death if left untreated.

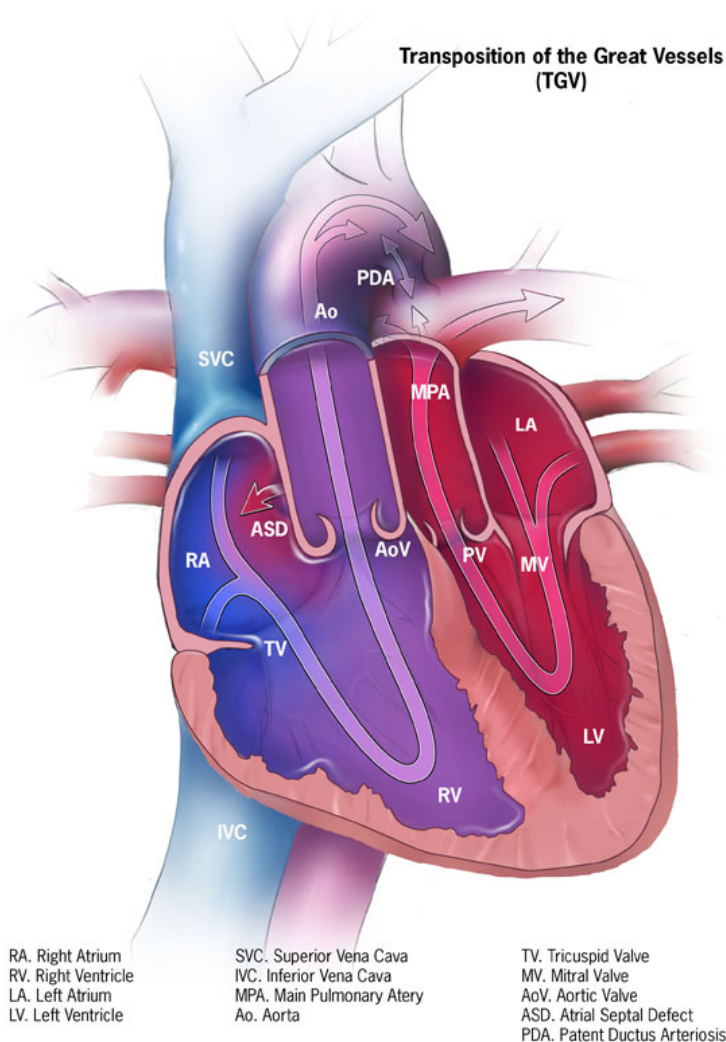


Image courtesy of the Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities

How common is it?

About 1 in every 3,300 babies born in the United States is born with TGA. This means about 1,250 babies a year will be born with TGA.

What causes it?

The cause of TGA is unknown in most babies. It may be a combination of factors that causes it, but more research is needed to understand the exact cause.

How is it diagnosed?

TGA can be diagnosed during pregnancy or after. Screenings are done to check for birth defects during pregnancy. After birth a doctor will do a physical examination to see whether the baby has **cyanosis**, which can be a sign of low levels of oxygen in the blood. The doctor also will listen to the baby's heart. If the doctor hears a heart murmur, or a "whooshing" sound, that can be a sign of a heart defect. A doctor also may see that a baby is having trouble breathing, a pounding heart, and poor feeding, all of which could be signs of a heart defect. A screening test called a **pulse oximetry screen** is done shortly after birth to check for critical congenital heart defects. A pulse oximeter is a tool that detects oxygen levels in blood. Low levels of oxygen in the blood could mean there is a heart defect. If a baby fails the screening, then the doctor should perform a diagnostic test called an **echocardiogram** to check for defects in the heart.

How is it treated?

TGA/TGV is repaired most commonly with a surgical procedure called an **arterial switch operation**. The aorta and pulmonary artery are connected to the correct lower chambers of the heart in this surgery. There is also another, less common, surgery called an **atrial switch operation**. Medications might be needed after surgery to help the heart pump better, control blood pressure, help get rid of extra fluid in the body, and slow down the heart rate if it's too fast. Your child's doctor should discuss treatment options with you. Regular visits to a **cardiologist**, a doctor who specializes in the heart, will be needed.

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/d-tga.html>

National Heart, Lung, and Blood Institute

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

