



**Medical
Blueprints**

NEW AND IMPROVED! SAVING THE SMALLEST HEARTS REPORT #2822

BACKGROUND: Congenital heart defects (CHDs) are the most common type of birth defect. CHDs are present at birth and can affect the structure of a baby's heart and the way it works. The defect can vary from mild (such as a small hole in the heart) to severe (such as missing or poorly formed parts of the heart). About one in four babies born with a heart defect has a critical CHD (also known as critical congenital heart defect). Babies with this need surgery or other procedures in the first year of life. The causes of CHDs are mostly unknown. Some babies have heart defects because of changes in their individual genes or chromosomes. CHDs also are thought to be caused by a combination of genes and other factors, such as things in the environment, the mother's diet, the mother's health conditions, or the mother's medication use during pregnancy.

(Source: <https://www.cdc.gov/ncbddd/heartdefects/facts.html>)

SYMPTOMS AND TREATMENT: Signs and symptoms for CHDs depend on the type and severity of the particular defect. Some symptoms can be blue-tinted nails or lips; fast or troubled breathing; tiredness when feeding; and sleepiness. Treatment for CHDs depends on the type and severity of the defect present. Some affected infants and children might need one or more surgeries to repair the heart or blood vessels. Some can be treated without surgery using a procedure called cardiac catheterization which is where a long tube is threaded through the blood vessels into the heart, where a doctor can take measurements and pictures, do tests, or repair the problem. Sometimes the heart defect can't be fully repaired, but these procedures can improve blood flow and the way the heart works.

(Source: <https://www.cdc.gov/ncbddd/heartdefects/facts.html>)

NEW TECHNOLOGY FOR CHD: The repair of CHDs in children and adults has been transformed over the past decade by advances in cardiac catheterization. A minimally invasive approach to diagnosing and treating these anomalies is associated with less risk and easier recovery for patients of all ages. Catheter-based interventions are now considered the standard of care in treating newborns, children and adults with a variety of types of CHD. Minimally invasive techniques have replaced open-heart surgery for other congenital defects including ventricular septal defects and patent ductus arteriosus. Technological advances have permitted treatment of younger patients and larger structural defects. Transcatheter intervention can be performed in newborn infants and even in the fetus. While the Melody valve was specifically designed to treat right ventricular outflow tract (RVOT) conduit dysfunction without the need for open-heart surgery, the Sapien valve was designed as a replacement of the aortic valve in elderly patients with calcific aortic stenosis.

(Source: https://www.uclahealth.org/Workfiles/clinical_updates/pediatrics/15v3-08_Cathlab.pdf)

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