

Advance Cardiology Programs

Cardiothoracic Surgery



When it comes to your child, any kind of surgery is concerning. When that surgery is related to the heart, it can be a very frightening time. The cardiothoracic surgeons in the Cook Children's Heart Center are recognized for their skill and expertise.

And, because they perform an average of 400 surgeries each year, they know how challenging it is for you and your child, and they will work closely with you to ensure you understand all your child's surgery will entail and the risks involved in order to provide the best plan of treatment.

Cook Children's cardiothoracic surgeons help diagnose and treat patients with difficult heart and cardiovascular defects. Our Cardiothoracic Surgery program provides complete care for newborns, infants and children with heart and cardiovascular defects. Cook Children's cardiothoracic surgeons also use their extensive experience to treat adults who were born with a heart disease.

Are you prepared for your child's heart surgery? – Knowing what to expect before the day of surgery can help to ease some of your anxiety. From scheduling a preoperative visit to talking to your child to what you need on the day of and the days following surgery, you'll find everything you need to be prepared, here.

What we treat

Our cardiothoracic surgery team's services include the diagnosis, treatment and repair of congenital heart defects, such as:

- Blood flow and heart valve abnormalities
 - Problems with the chamber walls including atrial and ventricular septal defects
 - Blood flow problems from the heart to other parts of the body, including aortic and pulmonary valve disease
 - Valve problems within the heart, including mitral and tricuspid valve disease
 - Problems involving multiple parts of the heart or atrioventricular canal defects
 - Coarctation or malformation of the aorta
 - Aortic problems, including interruptions or hypoplasia
 - Problems involving the blood vessels leading to the lungs, such as pulmonary artery stenosis and patent ductus arteriosus
 - Vascular rings or blood vessels that can entrap the airway or esophagus
- Blood flow irregularities outside of the heart
- Complex heart lesions
 - Hypoplastic left heart syndrome
 - Transposition of the great arteries
 - Single ventricle abnormalities
 - Total anomalous pulmonary venous connection
 - Tetralogy of Fallot
 - Double outlet right ventricle
 - Truncus arteriosus
 - Anomalous origin of the coronary arteries
 - Corrected transposition
 - Ebstein's anomaly
- Connective tissue disorders
 - Marfan syndrome

What we do

Our expert team of cardiologists, cardiac surgeons, diagnosticians, technicians and health care professionals provide advanced, ongoing, care for adults with congenital heart disease, including:

- Initial diagnostic visits
- Congenital cardiothoracic heart surgery
- Transthoracic and transesophageal echocardiography
- Advanced imaging with cardiac magnetic resonance imaging (cMRI) and high resolution CT
- Diagnostic and interventional cardiac catheterization
- Invasive and non-invasive electrophysiology
- High risk fetal echocardiography
- Pulmonary arterial hypertension
- Routine care outpatient clinics
- Clinical social support

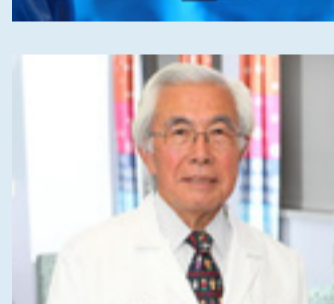
Our pioneering ACHD program coordinates with the following specialties to provide first-class comprehensive care of adults with congenital heart disease:

- Cardiothoracic surgery
- Pediatric surgery
- Fetal echocardiography
- Radiology
- Anesthesia
- Pulmonary medicine
- Genetics/genetic counseling
- Rehabilitation services
- Social workers

Vincent Tam, M.D., Medical Director, Cook Children's Cardiothoracic Surgery, trained at Johns Hopkins Hospital and Children's Hospital in Philadelphia under William Norwood, M.D., who developed the Norwood procedure in the early 1980s.



The aortic translocation surgery, also known as the Nikaidoh procedure, was developed by Hisashi Nikaidoh, M.D., a member of the Cook Children's surgical team. Children diagnosed with the rare triad of transposition of the great arteries, ventricular septal defect and pulmonary stenosis have a greatly improved prognosis after undergoing this procedure which involves aortic translocation with reconstruction of the right ventricular outflow tract.



Vinod Sebastian, M.D., trained under Frank L. Hanley, M.D. at Stanford Children's Health, who developed and pioneered the unifocalization procedure. This repairs a complex and potentially fatal congenital defect known as tetralogy of Fallot with pulmonary atresia and major aorto-pulmonary collaterals in just one procedure.



Surgical services

Did you know? Cook Children's cardiothoracic surgical team performs an average of 400 complex surgeries every year.

Services

- Repair of complex congenital heart defects, including corrected transposition of the great artery and heterotaxy syndromes
- Staged palliation of complex single ventricular heart defects such as hypoplastic left heart syndrome
- Heart valve repair
- Aortic translocation, also known as the Nikaidoh procedure
- Arrhythmia, pacemaker and defibrillator surgery
- Complex unifocalization

Aortic translocation

When a child is diagnosed with the rare combination of transposition of the great arteries, pulmonary stenosis and a ventricular septal defect, an aortic translocation or "the Nikaidoh procedure" is necessary.

With the Nikaidoh Procedure, the aorta is switched, along with the aortic valve, and placed in the pulmonary position. This avoids leaks of a faulty pulmonary valve on the right side. Additionally, it is necessary to mobilize the coronary arteries, as is done in the Arterial Switch Operation. The pulmonary root is divided at the level of the pulmonary valve, which is excised. The outlet septum is excised, thereby removing the superior margin of the VSD. The aortic root is transposed posteriorly so that it lies primarily over the left ventricle. The VSD is closed with a patch, which is anchored to the aortic root at its superior margin. The pulmonary artery is connected to the right ventriculotomy with an anterior patch of pericardium.

The procedure was developed by Hisashi Nikaidoh, M.D. in 1984 as a more effective alternative to the Rastelli procedure.

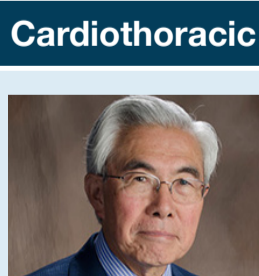
From 2011 to 2014, Cook Children's performed 10 of these procedures with 0% mortality, compared to 62 procedures performed nationally, as reported by the STS with a mortality rate of 3.2%.

Unifocalization procedure

This procedure repairs a complex and potentially fatal congenital defect known as tetralogy of Fallot with pulmonary atresia, making it more likely that the heart can be repaired before the child's condition worsens which can cause the surgery to be more difficult, or even impossible.

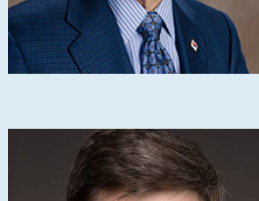
Cook Children's Heart Center is one of a few pediatric heart programs in the country to perform the unifocalization procedure, specifically on neonates and infants.

Cardiothoracic surgical team



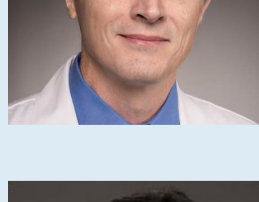
Hisashi Nikaidoh, MD Cardiothoracic Surgery

Education: University of Tokyo, Faculty of Medicine
Residency: US Naval Hospital, Yokosuka, Japan; Mount Sinai Hospital, New York, NY.; Children's Memorial Hospital, Chicago, IL.; Case Western Reserve University Hospitals
Board Certification: American Board of Surgery; American Board of Thoracic Surgery
Languages: English



Phillip Burch, MD Cardiothoracic Surgery

Education: University of South Alabama School of Medicine, Mobile, AL
Residency: Louisville School of Medicine (General Surgery), Louisville, KY
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Board Certification: American Board of Thoracic Surgery
Languages: English



Vincent K.H. Tam, MD Medical Director, Cardiothoracic Surgery

Education: University of Massachusetts Medical School, Worcester, MA
Residency: Johns Hopkins Hospital, Baltimore, MD
Fellowship: Johns Hopkins University, School of Medicine - Cardiac Surgery
Board Certification: Surgery, Surgical Critical Care and Thoracic Surgery
Languages: English



Vinod Sebastian, MD Cardiothoracic Surgery

Education: M.B.B.S. degree conferred, Mahatma Gandhi University Medical College, Kottayam, India
Residency: UMDNJ-NJMS/Monmouth Medical Center
Fellowship: 2007-2010 UT Southwestern Medical Center at Dallas, Dallas, Texas; 2010-2011 Oak Foundation Research Fellowship in Fetal Surgical Intervention Stanford University; 2011-2012 Clinical Instructor Pediatric Cardiac Surgery Stanford University
Board Certification: American Board of Surgery; American Board of Thoracic Surgery
Languages: English

Need help referring a patient?

Please call the International Patient Services department at +1-682-885-4685, send faxes to +1-682-885-2557, or email international@cookchildrens.org