



Heart Center



JAMES E. LOCK, MD
Chief of Cardiology



PEDRO J. DEL NIDO, MD
Chief of Cardiac Surgery

From performing the first surgical repair of patent ductus arteriosus and coarctation nearly 80 years ago, to successfully completing more than 150 closed fetal cardiac interventions in recent years, Boston Children's Hospital's Heart Center is both a historic leader and a modern innovator in pediatric cardiology and cardiac surgery.

Our center—the largest of its kind in the United States—encompasses the full spectrum of cardiac care. We are home to more than 25 subspecialties and an internationally renowned faculty that performs over 1,100 cardiac operations and 1,700 catheterizations every year. And with groundbreaking treatments like surgery for hypoplastic left heart syndrome, primary neonatal repair of transposition of the great arteries and successful *in utero* intervention for fetal aortic valve disease, we have dramatically improved survival rates for patients of all ages with congenital or acquired heart defects, including the rarest and most complex cases in the world.

Scheduling

Boston Children's Hospital
300 Longwood Avenue
Boston, MA 02115
childrenshospital.org/heart

Department of Cardiology
617-355-HART
cvp@cardio.chboston.org

Department of Cardiac Surgery
857-218-3580
cardiacsurg@cardio.chboston.org

International

For families residing outside of the United States, please contact Boston Children's International Center.
01-617-355-5209 | childrenshospital.org/international

Research

For more than 50 years, Boston Children's has pioneered cardiovascular solutions that have dramatically improved survival rates and the quality of life for children born with heart defects.

Our Heart Center attracts major research support from granting agencies, including the National Institutes of Health and the American Heart Association. It has the nation's most intensive clinical and basic research program focused on pediatric heart disease, and is an innovator in translational research, bringing laboratory discoveries to the bedside as quickly as possible.

Training

The fellowship programs of the Heart Center train academically oriented leaders in the clinical care and laboratory and clinical investigation of pediatric cardiovascular disease. Fellowships are offered in Pediatric Cardiology and Cardiovascular Research, Cardiac Anesthesia and Pediatric Cardiac Surgery.

The Congenital Heart Surgery Observership Course provides participants with extensive exposure to advanced surgical techniques used for repair of congenital heart malformations, including cardiopulmonary bypass techniques and variations, minimally-invasive techniques, robotic procedures and hybrid techniques.

childrenshospital.org/heartedu

Highlights in fiscal year 2011

- Ranked #1 in Cardiology and Heart Surgery by *U.S. News & World Report* in 2011-2012
- 78 cardiologists
- Seven cardiac surgeons
- 12 cardiac anesthesiologists
- 42 cardiology fellows
- Nine outpatient clinic locations
- 23,246 outpatient visits
- 41 beds in the inpatient cardiac unit
- 1,604 cardiology discharges, with a 3.65 case mix indicator
- 872 cardiac surgery discharges, with a 8.24 case mix indicator
- 29 beds in the cardiac intensive care unit
- Four catheterization labs and 1,316 catheterizations
- Three cardiac-only operating rooms
- 848 open heart surgeries with a 98 percent survival rate
- 381 closed heart surgeries with a 99 percent survival rate
- 11 heart transplants
- Two ventricular assist devices implanted
- One dedicated cardiac MRI suite and 1,185 cardiac MRIs
- 20,176 echocardiograms and 1,603 fetal echocardiograms

Clinical programs

Boston Adult Congenital Heart Service

Offers long-term care and advanced therapeutic options for adolescents and adults with congenital heart disease.

617-355-6508 | childrenshospital.org/bach
bach@cardio.chboston.org

Cardiac Electrophysiology Service

Specializing in catheter ablation, pacemaker and defibrillator implant and management of genetic arrhythmias, the program is one of the world's largest for pediatric arrhythmia care.

617-355-6328 | childrenshospital.org/electrophys
ep@cardio.chboston.org

Cardiac Neurodevelopmental Program

Cares for children with heart problems who are at higher risk for developmental, learning and behavioral problems.

617-355-3401 | childrenshospital.org/cnp

Cardiac Surgery

Sees more patients with complex heart disease than most centers in the world, offering the most innovative care with superior long-term outcomes. One key surgical innovation involves achieving biventricular circulation in patients with borderline hypoplastic left or right heart lesions previously managed with conventional single ventricle palliation.

617-355-7932 | childrenshospital.org/cardiacsurgery
cardiacsurg@cardio.chboston.org

Cardiomyopathy Program

Provides advanced diagnostic and therapeutic options for infants, children and adolescents diagnosed with cardiomyopathy.

617-355-6329 | childrenshospital.org/cardiomyopathy

Cardiovascular Genetics Program

Provides clinical care, information and resources for patients and families with a cardiac diagnosis in the setting of a recognized or suspected genetic condition or a family with inherited cardiovascular disease.

617-355-2079 | childrenshospital.org/cardiacgenetics
cardiacgenetics@cardio.chboston.org

Congenital Heart Valve Program

Continues to develop innovative catheter-based and surgical approaches for the preservation and restoration of valvular function in infants, children and young adults. The program emphasizes valve repair over replacement in many patients, with attendant benefits. Referrals include patients with complex congenital mitral disease, regurgitant or mixed aortic valve disease and Ebstein's anomaly of the tricuspid valve.

617-355-7932 | childrenshospital.org/heartvalve

Fetal Cardiology Program

To date, Boston Children's has performed more than 150 closed fetal cardiac interventions; we remain the largest and most experienced fetal cardiac intervention program in the world. Our interventions include mid-gestation fetal aortic valvuloplasty to prevent *in utero* progression of aortic stenosis to hypoplastic left heart syndrome, fetal pulmonary valvotomy to promote right heart growth in pulmonary atresia with intact ventricular septum and fetal atrial septostomy in hypoplastic left heart syndrome with intact or highly restrictive atrial septum.

617-355-1499 | childrenshospital.org/fetalheart
fetalcardio@cardio.chboston.org

Heart Transplant Program

Evaluates children who are potential candidates for transplantation and manages the care of those who have received transplanted hearts. In 2011, the program performed 11 donor heart transplants and implanted two assist devices.

617-355-6329 | childrenshospital.org/hearttx
hearttransplant@cardio.chboston.org

Interventional Catheterization Program

Leads the field of catheter-based treatment with 800 interventional procedures among a total of 1,300 catheterizations annually. We deploy both technical and strategic innovations in the management of an increasingly broad range of indications. These approaches complement surgical management in many cases, and obviate the need for surgery in many others.

617-355-7672 | childrenshospital.org/cath
cardiaccath@cardio.chboston.org

Kawasaki Disease Program

Coordinates care for patients with Kawasaki disease, both during the acute phase and in long-term follow-up. We see 50 new patients each year and have more than 1,400 patients in our long-term program.

617-355-2079 | childrenshospital.org/kawasaki
kawasaki@cardio.chboston.org

Lung Transplant Program

Performs transplantation and provides comprehensive care for children with pulmonary hypertension, pulmonary vein stenosis and other end-stage cardiovascular and lung diseases. Since the program's inception in 1990, 63 bilateral, single and heart-lung transplants have been performed, making ours one of the busiest pediatric lung transplantation centers in the country.

617-355-6681 | childrenshospital.org/lungtx
hearttransplant@cardio.chboston.org

Preventive Cardiology Program

Provides services to children aimed at identifying and medically managing cholesterol and blood pressure problems early in life, with the goal of preventing heart attack or stroke later in life.

617-355-0955 | childrenshospital.org/preventivecardio
preventivecardio@cardio.chboston.org

Pulmonary Hypertension Program

Provides diagnosis and a range of treatment options for patients with pulmonary hypertension.

617-355-7866 (information) | 617-355-2079 (scheduling)
childrenshospital.org/pht | pht@cardio.chboston.org

Pulmonary Vein Stenosis Program

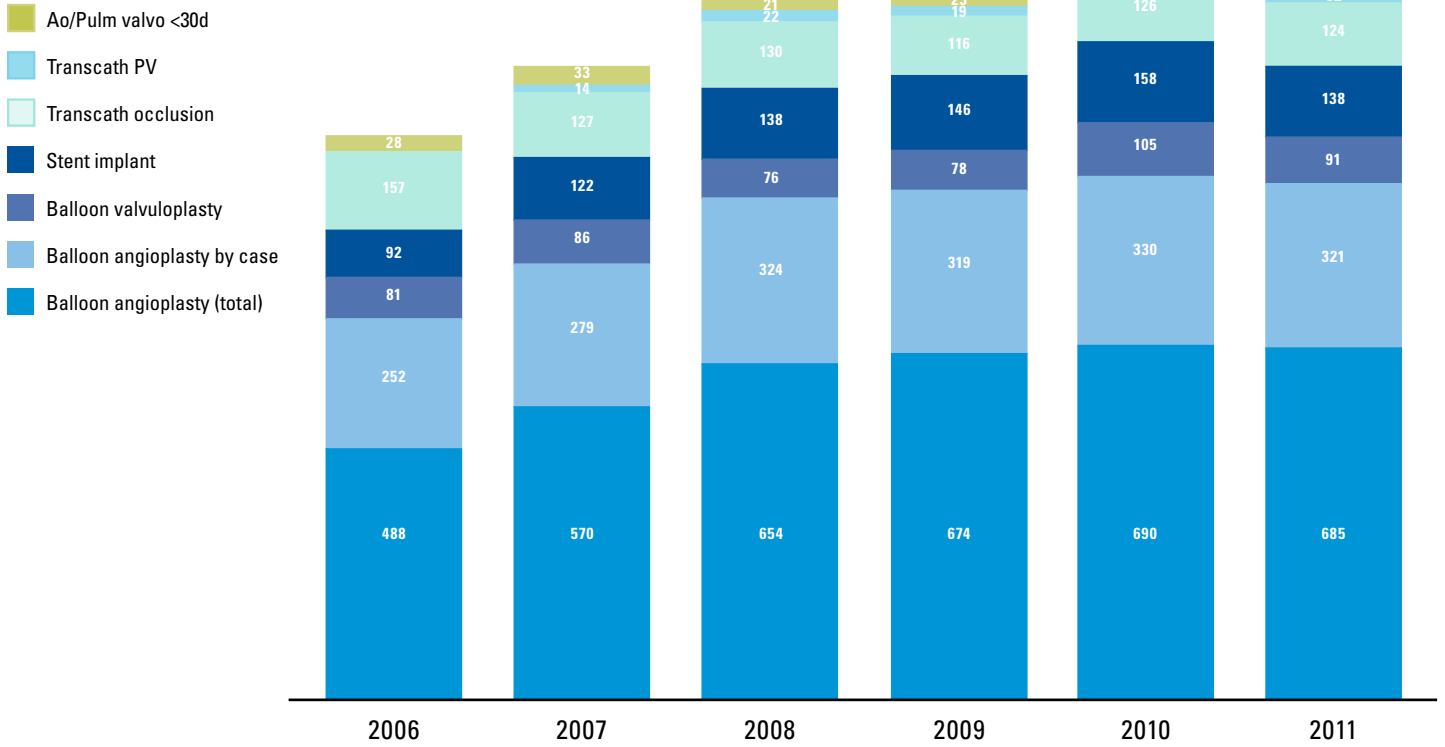
Provides care to patients diagnosed with pulmonary vein stenosis, utilizing a multidisciplinary team of doctors and nurses with expertise in the fields of cardiology, radiology, pathology and neuro-oncology.

617-355-2079 | childrenshospital.org/pvs
pvs@cardio.chboston.org

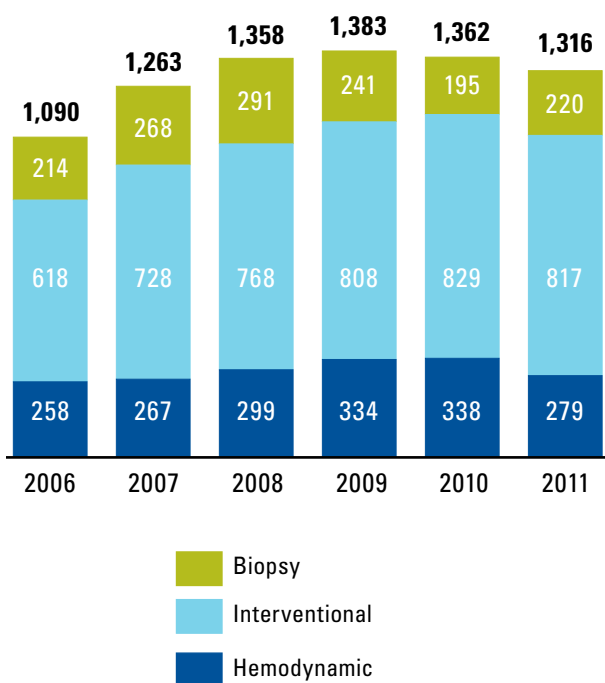
Services

- Cardiac anesthesia
- Cardiac ECMO Center
- Exercise physiology laboratory
- Non-invasive cardiac imaging
- Stress echocardiography

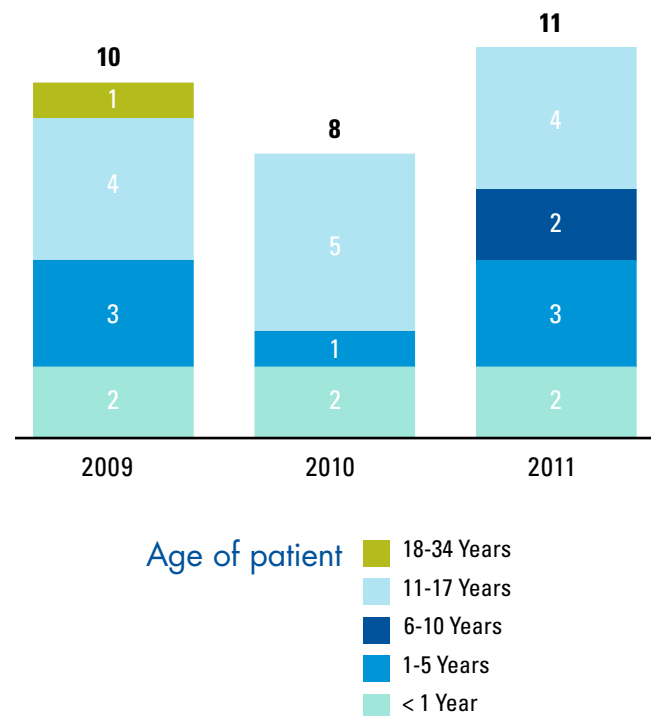
Data and outcomes Cardiac Catheterization Program



Catheterization procedures



Heart transplants by age



Data and outcomes

Cardiac Surgery

Procedures	Surgeries performed 2006-2008	Survival rate 2006-2008	Surgeries performed 2009-2011	Survival rate 2009-2011
Open heart	2,148	97%	2,498	98%
Closed heart (excludes premature PDAs)	1,246	99%	1,230	99%
TOTAL	3,394	98%	3,728	98%

Selected Procedures (30-day survival rates)	Surgeries performed 2006-2008	Survival rate 2006-2008	Surgeries performed 2009-2011	Survival rate 2009-2011
Atrial septal defect (ASD)	180	100%	196	100%
Ventricular septal defect (VSD) with or w/out arch reconstruction	207	98%	232	100%
Arterial Switch (ASO)				
ASO with VSD	32	97%	55	98%
ASO TGA/IVS	85	98%	49	98%
ASO Double Switch	16	100%	22	95%
Repair of total anomalous pulmonary venous return	24	92%	33	97%
Repair truncus arteriosus with or w/o arch repair	17	88%	13	92%
Norwood - stage I	83	86%	64	88%
Bi-directional Glenn - stage II	101	100%	91	99%
Fontan - stage III	145	99%	118	97%
Repair AV canal, complete	97	99%	105	96%
Repair AV canal, partial	59	100%	65	100%
Aortic valve repair	53	98%	91	100%
Mitral valve repair	91	99%	128	99%
Tetralogy of Fallot (pulmonary stenosis or atresia)	169	98%	157	99%
Sub aortic stenosis	57	100%	54	100%
Pulmonary valve insertion	113	100%	230	100%
Right ventricle to pulmonary artery conduit	82	100%	64	98%
Ebstein's anomaly/cone operation	12	100%	44	100%
TOTAL	1,623	97%	1,811	98%