

Cardiovascular Surgery at The Children's Hospital of Philadelphia



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Surgery for congenital heart disease at The Children's Hospital of Philadelphia began in the earliest days of cardiac surgery. In a rapidly advancing field, surgeons at Children's Hospital of Philadelphia are recognized as innovators in the field. The Division of Cardiac Surgery is dedicated to providing outstanding clinical care, educating the next generation of congenital cardiac surgeons, and advancing the specialty through clinical and translational research.

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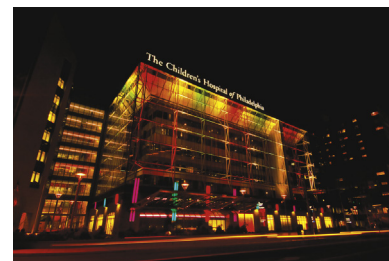
The Children's Hospital of Philadelphia (CHOP) was founded in 1855 as the nation's first hospital dedicated exclusively to the care of children. Drs Francis West Lewis, Thomas Hewson Bache, and R.A. F. Penrose were Philadelphia physicians who had traveled to London and visited the newly established Great Ormond Street Hospital for Sick Children. The physicians returned to Philadelphia to establish the nation's first pediatric hospital which was located on Blight St. in downtown Philadelphia with 12 beds. The hospital treated 63 patients in its first year. In 1866, CHOP moved to its second location at 22nd Street between Walnut St. and Locust St. and beds increased to 35. In 1873, the first resident physician was appointed to CHOP. His duties included compounding of all prescriptions. And in 1895, the Ingersoll Training School for Nurses, the birthplace of pediatric nursing in America, was established and operated until 1945. The Department for the Prevention of Disease was established in 1914, and was the first such program in the nation. The second major relocation of the hospital to 18th St. and Bainbridge St. occurred in 1916 and expanded the bed capacity significantly (Fig. 1). Joseph Stokes Jr. was appointed as Physician-In-Chief at CHOP in 1929. Dr Stokes is credited with transforming CHOP into a world leader in teaching and research. The Joseph Stokes Research Institute was founded to honor his memory. Among early interventions, the original whooping cough vaccine was developed at CHOP in 1936. This was the first in a series of childhood vaccines, including those for influenza and mumps, pioneered at CHOP by Drs Werner and Gertrude Henle, which have had worldwide effect on prevention of

childhood diseases.

In 1938, the first closed incubator was developed at CHOP for the use in newborns and in 1940 the first professional play program for patients, which developed

into Child Life Services was initiated at The Children's Hospital. The institution gained national prominence when Dr C. Everett Koop joined the medical staff in 1946 and by 1948 was appointed as the Surgeon-In-Chief of The Children's Hospital. He was internationally recognized for his expertise in separating conjoined twins. Dr Koop went on to become the nation's Surgeon General under President Ronald Reagan. In 1962, the first Neonatal Intensive Care Unit in the nation was established at CHOP and the first Pediatric Intensive Care Unit followed in 1967. In 1963, Stanley Plotkin developed the Rubella vaccine and the initial clinical trials were conducted at CHOP. A major advancement in the treatment of congenital heart disease occurred in 1965 when Dr William Rashkind, Chief of Pediatric Cardiology at CHOP, developed the balloon atrial septostomy, thus permitting improvement in cyanosis and stabilization in patients with transposition of the great arteries with intact ventricular septum¹ (Fig. 2). In 1974, the hospital made its third move to its current location at 34th Street and Civic Center Boulevard, which is adjacent to the old Philadelphia General Hospital, an institution that was recognized for the pioneering procedures for closed mitral valvuloplasty by Dr Charles Bailey (Fig. 3).

Since the move to West Philadelphia, CHOP has expanded significantly with the addition of several research buildings, a new 700,000 square foot ambulatory care facility, multiple additions to the main hospital, new specialty care facilities, and



The Children's Hospital of Philadelphia

Central Message

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Figure 1. The Children's Hospital of Philadelphia before moving to current location.

many pediatric practices (Fig. 4). CHOP is now a health system providing care to thousands of patients annually from the Delaware Valley, the United States and internationally. The CHOP Care Network consists of 16 Specialty Care Centers, 4 Ambulatory Surgery Centers, 31 Primary Care practices, 15 community hospital affiliations, and 3 after-hours urgent care facilities. CHOP has been recognized by the US News and World Report as one of the top 2 pediatric institutions in the United States and is in the top 4 of 9 of the 10 specialty rankings. The continued emphasis on research led to CHOP being designated as a Human Genome Center by the National Institutes of Health. CHOP researchers

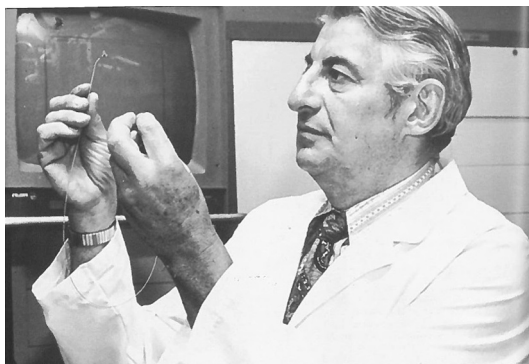


Figure 2. Dr William Rashkind and balloon septostomy catheter.



Figure 3. The Children's Hospital of Philadelphia. (Color version of figure is available online.)

were instrumental in the mapping of chromosome 22, which was completed in 1999. In 1995, the Center for Fetal Diagnosis and Treatment was established which provides fetal surgery and intervention for complex congenital malformations and cardiac diseases. A multibillion dollar expansion of the facilities was undertaken in 2001, and has led to a large medical campus in West Philadelphia encompassing the main hospital and ambulatory care building, several research buildings for the Stokes Institute of Research and The Children's Seashore House, a rehabilitation facility which was relocated from the Atlantic Shore to the main campus.

Surgery for congenital heart disease at CHOP began with Dr Julian Johnson who was the 43rd President of the American Association for Thoracic Surgery^{2,3} (Fig. 5). Dr Johnson completed his surgical training in Philadelphia. In the Pacific Theater, Johnson served in the 20th General Hospital which had been organized from the Hospital of the University of Pennsylvania by Drs I.S. Ravdin and Thomas Fitzhugh. He returned to Philadelphia after the war and eventually served as Chief of Cardiothoracic Surgery at The University of Pennsylvania until retirement in 1973. Early in his career, Dr Johnson developed an interest in the emerging field of congenital heart surgery.^{4,5} He was an early adopter of the innovative techniques being introduced to treat the problem of congenital heart disease, including ligation of patent ductus arteriosus, repair of coarctation of the aorta, and the Blalock-Taussig shunt for palliation of tetralogy of Fallot. He quickly mastered the Blalock-Taussig shunt and was referred many patients by Dr Blalock.⁶ After the first successful use of cardiopulmonary bypass by John Gibbon in 1953, Johnson initiated the open heart surgery programs at both the University of Pennsylvania and CHOP. By 1964, he with his associates, Charles Kirby and Gordon Danielson, reported a series from both institutions of 100 consecutive open heart

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