
History and Art

The Hospital for Sick Children, Toronto

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The Hospital for Sick Children, Toronto (1891-1951)

Toronto is the capital of Ontario, and is Canada's second largest city, second only to Montreal. Toronto is one of the busiest Canadian ports on the Great Lakes. During the 1600s and 1700s, Native Americans used the area of Toronto as an overland route between Lake Ontario and Lake Huron. In 1793, John Graves Simcoe established a settlement named York, after the Duke of York, on the site of present day Toronto. In 1834, the town was renamed Toronto, a Huron Indian term meaning "meeting place," and received its city charter. The city had a population of about 10,000. During

the late 1800s, Toronto began to grow as a center of manufacturing and transportation; its population grew from 30,000 in 1851 to 208,000 in 1901.^{1,2}

The Hospital for Sick Children (HSC), founded in 1875, and the Bloorview Children's Hospital, founded in 1899, exist today in Toronto to provide care for acutely and chronically sick children. These two institutions were founded by the efforts of a group of women (the Ladies' Committee), and remain as examples of the influential role of women in the late nineteenth century.²

Specialized care and treatment for sick children did not evolve until the latter part of the nineteenth century. Before the nineteenth century, children were indiscriminately treated along with adults in general hospitals. Evidence of neglect, cruelty, and infanticide was abundant, and the mor-

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tality within the first 5 years of life was higher than 75%. A variety of factors, such as new willingness to recognize and consider the unique needs of children emerged as the nineteenth century progressed, thus changing attitudes toward children and their care. The death of children was seen as preventable rather than the natural order, and hospitals for children proliferated.^{2,4}

After the inauguration of the first children's hospital in the world, L' Hôpital des Enfants Malades, Paris, France, in 1802, numerous countries followed the successful example of the French initiative and opened their own children's hospitals. Children's hospitals were established in Dublin (1821), St. Petersburg (1834), Vienna (1837), Pest (1839), Moscow (1842), Prague (1842), Turin (1843), Berlin (1843 and 1844), Graz (1844), Copenhagen (1845), Munich (1846), Constantinople (1847), London (1852), Philadelphia (1855), Boston (1869), Belfast (1873), Madrid (1877).⁵⁻¹¹

Children's hospitals were created primarily for the poor and indigent. Sick children of the more fortunate classes continued to be cared for in their homes. As living, sanitation, nutrition, and hygiene standards improved, children benefited from a reduction in mortality, at the children's hospital, rather than advances in medical practice. In the late nineteenth century, hospitals were transformed from chronic institutions for the socially marginal, into centers for acute care with increasing focus on surgery and scientific diagnosis and treatment. At the same time, the authority of lay hospital boards was replaced by that of physicians and professional administrators, and trained nurses took over ward management. The history of the HSC in Toronto is a good example of this change.²⁻¹¹

The First Hospital (1875 –1891)

The earliest appeal for financial support from the Toronto community to open the children's hospital was recorded in the January 26, 1875 issue of *The Daily Globe*.¹² After a year's planning, Toronto native young woman Mrs. Elizabeth McMaster and a committee of 22 ladies, opened the first children's hospital in Canada on March 1, 1875. Mrs. McMaster was strongly motivated by her Baptist faith. The original building was an eleven-room, two-story house on Avenue Road in downtown Toronto. The rent was \$320 per year. It was a charity hospital to receive all sick children, both as inpatients and outpatients.^{2,12-14}

The hospital admitted sick children who were destitute and friendless, children whose parents were stricken by poverty and were unable to care for them, or children who could not receive care and attention at home, but whose friends were willing to contribute somewhat towards the hospital expenses and maintenance. The first patient to receive hospital attention was Maggie, a young girl who on April 3,

1875, came to the newly opened facility seeking help for a severely scalded arm.^{2,12,14}

The hospital was equipped with six iron cots, and treated 44 children as inpatients and 67 more as outpatients in its first year. Many children were admitted with chronic conditions and remained in the hospital for months or even years.^{2,12-14}

Accident cases, burns, and fractures, and medical conditions such as bronchitis in children were treated at HSC. But the majority of children had chronic orthopedic disorders related to tuberculosis or congenital deformities. Hip disease was the leading cause of admission to HSC throughout the early years. Treatment for orthopedic conditions included the use of casts, weights, and splints. Surgery was limited and confined to the draining of abscesses and, occasionally, amputation.²

Normally, HSC did not accept infants, as little could be done for them. At the Toronto Infants' Home, 60 out of 151 infants died in 1878. Although this was not unusual for the time, the Government Inspector recommended an infirmary within the institution. The infirmary provided medical and nursing care for sick infants.^{2,15}

By the 1870s, Toronto had a variety of other institutions for children. The Infants' Home, Girls' Home, and Boys' Home were for orphans and abandoned children. There also were new institutions for the care and training of deaf and blind children placed in Ontario towns. The Orillia Asylum for Idiots opened in 1876 its refurbished building, adding beds for children. During the summer, sickly babies from the Infants' Home and orphanages were transferred to the HSC summer hospital on Toronto Island. This facility, known as the Lakeside Hospital or Island Home, housed up to 60 children. The transfer was a big event in the lives of the children. In managing their small hospital, the HSC Ladies' Committee interacted with all these institutions. Patients were admitted from the various Toronto orphanages or were discharged to them.²

The good ladies raised funds by selling needlework, wheedling donations, discrete advertising, applying for grants from city and provincial governments, and by prayer.^{2,14} In 1887, the city of Toronto gave \$20,000 to the HSC building fund in honor of Queen Victoria's Jubilee.¹⁶

The HSC Ladies' Committee had total responsibility for management until 1892. The hospital was run with emphasis on loving care, nourishing food, and cleanliness. Discipline of the children was firm, but kind. A matron supervised the untrained nurses, until the matron's position was assumed by a graduate nurse, after trained nurses became available in Canada. In 1886, Hannah Cody, who had trained at the Toronto General Hospital, became a superintendent and the first graduate nurse at HSC. Mrs. Elizabeth McMaster remained a driving force in the development of the hospital until she left Toronto in 1892.²

Between 1875 and 1891, The Hospital for Sick Children moved to four different homes to keep up with the growing number of children seeking treatment. The hospital was incorporated with five men on the Board of Trustees. Changes and developments had begun.^{2,12,14}

The John Ross Robertson Years

John Ross Robertson was the wealthy and influential founder, owner and publisher of the *Toronto Telegram*. In 1881, his young daughter Goldwin died, and this prompted him to become a strong activist and benefactor for HSC. After only a few months, HSC became his. With the help of other influential Toronto men, Robertson planned and guided the hospital's destiny for almost three decades until his death in 1918.^{2,14}

Robertson's trusteeship heralded a greater focus on acute pediatric care. As the practice of pediatric medicine was developing as a science, Robertson used his considerable money and influence to keep the HSC in the forefront of the new medical and scientific care. Physicians increased their influence in the hospital, and they did not challenge Robertson's leadership. While happy with the increasing level of scientific medical care at HSC, the founding ladies became increasingly frustrated with their lack of power to influence decisions. They continued to function as advisors to the Board of Trustees and as visitors to the children, primarily for the chronically ill children who were considered incurable.^{2,14}

In 1883, the Lakeside Convalescent Home for Little Children was opened on Toronto Island for the care of many children with tuberculosis. The home offered the children fresh air and sunshine rather than mere hospitalization. In 1884, a ward was set aside at HSC for the care of imbeciles and paralyzed children. Specially trained nurses staffed it. In 1885, an isolation ward was added for children with infectious diseases, or any patient who was troubled or had anxiety. During the next 5 years, the evolution continued. In 1886, a training school for nurses was added to HSC, a dentist and a pathologist were added to the staff, and infants under 2 years of age were admitted to the hospital.^{2,14,17}

The Second Hospital (1891-1951)

In October 1891, HSC moved to 67 College Street to an impressive new four-story, 320-bed facility at the corner of Elizabeth and College Streets. The Toronto city council asked that it be named The Victoria Hospital for Sick Children, but the new name for the hospital was never officially adopted. The building is currently occupied by the Canadian Blood Services. The inscription at the entrance of the building still reads: "The Victoria Hospital for Sick Children."¹²⁻¹⁴

When the new hospital opened, the Ladies' Committee handed over management of the hospital to a male Board of Trustees, and John Ross Robertson became its chairman, with unchallenged authority. The new HSC Act of Incorporation included a mandate "to promote the advancement of medical science [in] the diseases of children," and HSC was to provide care for acutely ill children only. The Ladies' Committee was unhappy with the new policy and hoped that a chronic ward might nonetheless be created in the new building.^{2,14}

Throughout the 1890s, the Ladies' Committee continued their duties, which included visiting the children in the hospital. A new Nurse Superintendent, Louise Brent, was appointed in 1897. Perhaps her status as a professional nurse and administrator served to make the committee members feel unnecessary. Although the Ladies' Committee and Robertson each continued to profess great appreciation of each other, there was a final disagreement in May of 1899.²

The departure of the committee members did not mean an end to the work of this ladies group. In November 1899, within 6 months of leaving HSC, and having decided to start in a small way, these women founded the Home for Incurable Children. The Home for Incurable Children perpetuated the concept of a small, homelike institution run according to middle-class ideals. Paid staff and management were entirely female. It was to be many decades before men were permitted on the Board of Management. This institution exists today as the Bloorview Children's Hospital in Toronto.²

Within the new HSC at 67 College Street, the evolution continued at an ever increasing pace. Oculist and aurist departments were added, an anesthetist was appointed, and in 1892, the first school for children in a hospital was established with one teacher on staff. For the benefit of patients with curvature of the spine, a gymnasium was opened and rehabilitation medicine was launched with the appointment of a masseuse. An orthopedic shop for making splints, braces, and prostheses was opened in 1899 to help so many crippled children coming to the hospital.¹⁴

One year after the discovery of x-rays in 1895, an x-ray machine was imported from Europe for the new hospital, and the first orthopedic surgeon joined the staff. Surgeons were beginning to correct acquired or congenital deformities of the neck, spine, hand and foot, and even cleft lip and palate. Surgeons also repaired hernias, removed tonsils, and operated cases of osteomyelitis and mastoiditis. In 1897, a department of bacteriology was opened.¹⁴

By 1900, 40,000 patients had been treated at HSC. Within the next 5 years, a dental clinic and a school of public health nursing would be in operation. The first woman doctor appointed to a hospital staff in Canada was at HSC. Since 1894, medical students had received some of their training at the hospital, and now the nursing school had expanded and had its own residence. In 1908, a department of scientific research, known today as the Research Institute,

and a biochemical laboratory for the study of nutrition were added. Also a visiting nurse service was established. Nurses visited discharged patients to ensure they received proper care.^{14,17}

In 1908, John Ross Robertson announced the installation of Toronto's first milk pasteurization plant in the College Street Hospital, 30 years before it became mandatory. In 1910, a Preventorium pavilion was incorporated into the Lakeside Convalescent Home. HSC was one of the first institutions to recognize the value of sunlight in the treatment of tuberculosis. The hospital's social service department began 3 years later, and the first well-baby clinic was held at the hospital in 1914. The evolution from a service unit to a teaching and research hospital was well underway, and the hospital was moving out into the community with education and prevention.^{13,14,17,18}

Dr. Alan Brown Years

In 1918, shortly before Robertson's death, Dr. Alan Brown was appointed as physician in chief at HSC, and Dr. W. E. Gallie as surgeon in chief.¹⁴ Dr. Alan Brown was born in 1887 in Clinton, Ontario. He attended the University of Toronto School of Medicine, where his mother, previously, was one of the first two female students admitted at a time when women were instructed separately from men. Dr. Alan Brown was an excellent student and he was very active in sports.¹⁹ He graduated in 1909 with honors and was awarded a silver medal. Following an internship at The Hospital for Sick Children, he spent 3 years at the Babies Hospital, in New York, under renowned pediatrician Dr. Emmet Holt. After further training in Germany, Austria, and France, Dr. Alan Brown returned to Toronto to establish a practice.¹⁹ John Ross Robertson finally appointed him to the staff of HSC. In 1920, Dr. Brown reduced the infant mortality at HSC from 155 to 88 per 1000 admissions. This accomplishment marked the beginning of Dr. Alan Brown's career as a pioneer in pediatrics. Following Robertson's death in 1918, Dr. Brown was named physician in chief and associate professor in the subdepartment of pediatrics.¹⁹

Dr. Brown attracted many outstanding pediatricians and research workers to HSC. In 1919, Lawrence Bruce Robertson became a pioneer in blood transfusion in children. In 1920, Angela Courtney started a research laboratory and Frederick Tisdall arrived to begin an illustrious career in the field of nutrition research. Dr. Gladys Boyd was also appointed to the staff in 1920. When the discovery of insulin, in 1921, was published in 1922, Dr. Frederick G. Banting joined Dr. Boyd in treating children with diabetes. Their program resulted in a 50% decrease in the childhood mortality record from diabetes, as listed over a 10-year period. Frederick Grant Banting (1891-1941), a Canadian physician, was the principal discoverer of insulin in 1921. He was aided by Charles Herbert Best, John James Rickard Macleod,

and James Bertram Collip. In 1923, Banting and Macleod received the Nobel prize in medicine and physiology for their discovery. They both shared their honors with their coworkers, Best and Collip, respectively. In 1922, William Gallie used fascia lata as a living tissue suture. Dr. Le Mesurier developed a procedure for repair of cleft lip.^{1,14,18,19}

In 1922, under Dr. Brown's Chairmanship, the Society for the Study of Diseases of Children (later the Canadian Paediatric Society) was created by a small group. Dr. Brown helped found the University of Toronto Institute of Child Study as well. At the HSC, outpatient clinics were organized for the treatment of congenital syphilis, and for cardiac, nutritional and neurologic conditions. The first psychological clinic for children in Canada was established. A special ambulance service was instituted to transport premature infants. Adequate trials of new research techniques were strongly encouraged by Dr. Brown. When an epidemic of polio occurred in Winnipeg, Dr. Brown had large quantities of polio convalescent serum shipped to the area, although preliminary clinical trials of polio convalescent serum were inconclusive. Measles convalescent serum was also tested and reported to be unsatisfactory.^{14,18,19}

Studies on iron- and vitamin-enriched foods and on dietary habits and deficiency diseases among pregnant women and school children were among major areas of effort under the leadership of Fred Tisdall. Dr. Brown was a proponent of "scientific" feeding, and he was also an advocate of breast-feeding. By 1930, Drs. Alan Brown, Fred Tisdall, and Theo Drake invented the first ready-to-use vitamin and mineral enriched cereal Pablum. Also being developed at this time were Sunwheat Biscuits, a high nutrition biscuit, and enriched bread.^{17,19}

In 1932 there were 6,593 admissions and 84,202 outpatient visits to HSC. The motto of the hospital at that time was a service commitment: "where no child knocks in vain."¹⁴ By 1934, Drs. Fred Tisdall and Theo Drake, working with the National Dairy Council, demonstrated the value of enriching milk with Vitamin D.¹⁷ In 1935, John Ross studied lead poisoning in children.¹⁸ Also that same year, Dr. Alan Brown was named the first Professor of Paediatrics in the newly established Department of Paediatrics at the University of Toronto.¹⁸ By 1937, the "iron lung" was developed as a result of the polio epidemic. Over 30 iron lungs were manufactured at that time for use throughout Ontario.^{13,17,18}

The Sioux Lookout Project for Indians in Ontario was created as well as programs for detecting deafness and early scoliosis in school children, with a mobile van and a helicopter landing facility for the transport of sick children to the hospital.¹⁴ Dr. Brown did not hold staff meetings but encouraged attendance to out-of-town clinics for crippled children and babies, and public meetings on child-care topics. He believed the hospital should actively serve the community beyond its walls, and gave its services freely.¹⁹

On February 4, 1951, the HSC moved to 555 University Avenue. Dr. Alan Brown found it difficult to cope at the large new hospital and, according to his friends, Dr. Brown missed “the old friendly home they had at 67 College Street.” After a rich and productive 36-year career as a pioneer in pediatrics, Dr. Brown retired. It was an occasion of sadness and nostalgia throughout the community, as Dr. Brown had been one of the greatest pediatricians in Canadian history.¹⁹

On September 9, 1960, *The Globe and Mail* (Toronto) paid him the following tribute:

“When Dr. Alan Brown died this week, there passed from the scene a brilliant, irascible, dictatorial, dedicated man who was generally considered to be the best baby doctor Canada ever had.”¹⁹

The Third Hospital (1951 – Present)

On February 4, 1951, The Hospital for Sick Children moved to 555 University Avenue, a building that it still occupies. At the same time, there was a switch in emphasis from nutritional research to repair of congenital defects.^{13,17} Expansion of research efforts led to the formation, in 1953, of the Research Institute as a division within the HSC, but with its own administration.²⁰

The Research Institute grew into one of the largest and most important biomedical research facilities in Canada.^{20,21} Children in many countries receive, at present, better care as a result of the education and research programs HSC has carried on for many years.²¹ The Research Institute has had a wide range of activities and programs, from basic studies in biochemistry and cell biology, to many kinds of applied studies directly related to patients, such as in neurobiology, respiratory, cystic fibrosis, immunology, infectious diseases, genetic-metabolic diseases, fetal and neonatal physiology and metabolism, cell growth and differentiation, enzyme studies, and investigation of psychosocial problems in children.²⁰

Since 1950, HSC has been in the forefront of treatment of congenital heart disease by developing extra-corporeal circulation in 1951, and a surgical procedure to correct totally congenital transposition of the great vessels (Mustard's procedure) in 1963.^{14,18} Innominate bone osteotomy (Salter's procedure) was developed in 1957 to correct congenital dislocation of the hip.^{14,18}

In 1964, one of the first intensive care units in North America for the exclusive use of newborns was established, while in 1965 a laboratory procedure that cuts the time required to diagnose whooping cough from five days to 30 minutes was developed by researchers.¹⁸

In 1969, HSC opened an “outer out-patient clinic,” in Sioux Lookout to care for Northern Ontario children.¹⁸ Also in 1969 Kathy W. became the HSC's first kidney transplant



The Hospital for Sick Children, Toronto (2000)

patient. The 500th kidney transplant was performed in 1995.¹⁸

Canada's first successful surgical separation of conjoined twins took place at HSC in 1971; there have been five surgical separations since then.¹⁸

From 1972 to the present, HSC initiated improvements in the treatment of cystic fibrosis that have resulted in patients having the best survival rates, with an average life span of 30 years. Also in 1972, Canada's first bone marrow transplant program began at HSC. In 1974, Canada's first successful bone marrow transplant was done at HSC on a four-year-old patient with congenital aplastic anemia; while in 1990, the first successful bone marrow transplant for a patient with Omenn's Syndrome, a form of severe combined immunodeficiency (SCID) that presents similarly to acute graft-versus-host disease, was performed. At present, HSC has one of the two largest centers for bone marrow transplants in North America, with approximately 75 transplants performed each year.¹⁸

In 1972 The Hospital for Sick Children Foundation was established to raise money for the “betterment of the health

of children." At present, the HSC Foundation is one of the largest in Canada.¹⁸

In 1973, Canada's first transplant operation where a kidney from a living donor was given to a child took place at HSC.¹⁸

The number of patients admitted increased from 44 in 1875 to 26,536 in 1974, and the number treated in the outpatient department also increased, from 67 in 1875 to 163,917 in 1974.¹⁴

The overall case fatality rate of 17.6% in the hospital early in the century declined to 1.5% in 1974, and the average duration of hospitalization from 54 days to 8.5 days.¹⁴

In 1976, Sick Kids' Mobile Hearing Clinic hit the road, and in 1979, Dr. Robert Salter developed continuous passive motion, an improved method of treating patients with damaged cartilage. Also in 1979, a team led by Dr. A. Charles Bryan invented a radically different ventilator, the high frequency oscillator, which is at presently used world wide to gently "shake" oxygen into the lungs of infants and children with severe lung disease. This ventilator has spared many children from undergoing lung bypass procedures.¹⁸

In 1986, a liver transplant program began at HSC, with approximately 15 to 20 transplants performed per year at present.¹⁸ In 1987, rapid advancements took place in genetics at HSC: the gene responsible for Duchenne Muscular Dystrophy was identified, followed by the gene defect that causes Tay-Sachs disease (1988), the gene responsible for one form of Fanconi's Anemia (1992), and the gene responsible for Wilson disease (1993). In 1989, Dr. Lap-Chee Tsui led a team that discovered the gene which, when defective, is responsible for cystic fibrosis.¹⁸

The HSC's first heart transplant was performed in 1990. Currently HSC performs approximately 15 heart transplants per year, about 80% of Canada's pediatric heart transplants. During that same year of 1990, tumor suppressor genes were discovered to play a role in the cause of Wilms tumor, a kidney cancer affecting children.²²

In 1993, the Hospital's Atrium opened to provide state-of-the-art patient care and a child friendly atmosphere.^{12,17}

The first biological proof that second-hand cigarette smoke could affect a fetus was provided in 1994; while in 1995, during International Literacy Day, HSC officially opened the Reading Room, a symbol of the Hospital's commitment to literacy as a key determinant of health. Also in 1995, HSC and Women's College Hospital launched an HIV/AIDS Family Centered Care Program to provide and coordinate health services for women with HIV, their partners, and children.²²

In the following year of 1996, researchers developed a novel concept for treating recurrent acute lymphoblastic leukemia, the most common form of childhood cancer. That same year, an international team of scientists, led by the director of the HSC Research Institute, discovered the gene responsible for more than 60% of all cases of Fanconi ane-

mia, a rare and devastating blood disorder. HSC researchers also discovered, in 1996, a gene implicated in the development of colon cancer.²²

In 1997, HSC researchers demonstrated that not only do infants feel and remember circumcision pain, but that use of a topical anesthetic cream safely and significantly reduces pain.²²

Research led by Dr. Michael Salter in 1998 discovered a key protein involved in the process of memory and learning. This discovery could lead to new treatments for people with learning disorders and Alzheimer's disease.¹⁷

In 1998, HSC established North America's first Paediatric Academic Multi-Organ Transplant Program for kidney, liver, lung, and small bowel transplantation. HSC is one of only two centers in Canada to perform this latter type of transplant.²³

In 1999, researchers in Sick Kids' Motherisk program showed that occupational exposure during pregnancy to organic solvents increases the chances for major birth defects. The Arthur and Sonia Labatt Brain Tumour Research Centre opened in 1999, as Canada's first basic science brain tumor research center, for both adults and children.²³

This being the year 2000, The Hospital for Sick Children, Toronto turns 125 years young.

After 125 years of excellence, HSC is looking at its new vision for the new millennium, and continues to change and evolve in order to thrive and pursue its vision of becoming the world's best children's academic health sciences center.²⁴

Since its opening in 1875 until present, The Hospital for Sick Children in Toronto has made continuing efforts to fulfill the promise: "where no child knocks in vain."

Long live to The Hospital for Sick Children, Toronto!

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