

The History of Surgery at the Montreal Heart Institute



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The Montreal Heart Institute (MHI) is a specialty hospital dedicated to cardiology and heart surgery. Founded in 1954 by Paul David, it is currently affiliated with the Université de Montréal. The Montreal Heart Institute is a center that has rested on the shoulders of multiple pioneers over the past 63 years. Renowned for its sustained excellence and commitment to patient care, the MHI also focuses on research and innovation. It has become one of the leading heart institutions in modern cardiac surgery and also one of the busiest cardiac surgery centers in the country. Our leaders have impacted the treatment of patients with heart diseases through clinical care and education. Staff surgeons have been trained at top centers across the world for the benefit of Canadian patients. The MHI was a pioneer in heart transplantation and CABG surgery and focuses on evaluative research of new technology.

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Montreal Heart Institute

Central Message

The article features the history of cardiovascular and thoracic surgery at the MHI along with the contribution of physicians both past and present.

INTRODUCTION

Although the development of cardiac surgery in the mid-1950s rested on the shoulders of a handful of pioneers worldwide, the Montreal Heart Institute (MHI) was created almost singlehandedly by one individual, its founder cardiologist Paul David (Fig. 1) (1919–1999).¹ In 1952, the Grey Nuns offered David to head a cardiology unit independent from their new main general hospital, on the model of the Montreal Neurological Institute (MNI), founded in 1934 by American-born neurosurgeon Wilder Graves Penfield (1891–1976). The world's first heart center was the National Institute of Cardiology (Instituto Nacional de Cardiología) in Mexico City, founded in 1944 by Ignacio Chávez.

HISTORY

The MHI opened for business on January 11, 1954, as the world's second cardiac institute though in fact it had another elder sibling in Minneapolis called the Variety Club Heart Institute in 1951.

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HISTORIC FIGURES AND GREAT CONTRIBUTIONS

In 1951, David teamed up with Edouard Gagnon, a surgeon at Notre-Dame Hospital run by the same nuns, to perform Canada's first mitral commissurotomy. Paul David enticed Gagnon to coming to the institute while Gagnon kept his appointment at Notre-Dame Hospital, where he did thoracic surgery. Also invited was Arthur Vineberg at the Royal Victoria hospital. Gagnon and Vineberg assisted one another for the institute's first mitral commissurotomy in February 1954 and Vineberg did his first internal mammary artery implantation there 1 month later.

In the summer of 1957, after multiple trial runs in the lab with a modified version of the DeWall-Lillehei machine, stars were aligned for the first clinical procedure. In the interim, David recruited a third surgeon Jean-Louis Lamy who had spent time in Minneapolis on Lillehei's service.

On July 3, 1957, direct closure of a large ostium secundum atrial septal defect was performed with cardiopulmonary bypass on an 8-year old, using a modified version of the DeWall apparatus and became Québec's first successful open heart surgery with cardiopulmonary bypass.

In 1958, David recruited Gilles Lepage who was trained for 2 years in England in cardiothoracic surgery, including a year with Russell Brock. Lepage implanted the first pacemaker at the MHI (Electrodyne, transthoracic) on July 21, 1961.

In 1962, David paid a visit to Denton Cooley who operated at both Methodist Hospital and St. Luke's Episcopal Hospital where Pierre Grondin, was the chief resident, Grondin trained



The Montreal Heart Institute. (Color version of figure is available online.)

in Houston under Michael DeBakey and Denton Cooley, both world authorities in vascular and cardiac surgery.

David was quite impressed by Grondin's skills and invited him to join the MHI team in January 1963. Formerly a general and vascular surgeon, he had

experience, poise, and was coming from the world's busiest heart surgery program.

In 1961, Lamy performed the institute's 200th open heart operation. Grondin and Lepage would do 200 cases a year starting in 1965. The 1000th procedure was performed in 1967, and by 1984, the magic number of 1000 patients annually was reached. The MHI would long remain Canada's busiest cardiac surgery center, until the Toronto General took over this distinction in the mid-1980s. Currently, more than 1800 patients undergo open heart surgery annually at the institute.

With the advent of coronary artery surgery, the volume of surgery grew rapidly. This increase coincided with the construction of a new 5-storey wing that added 50 beds to the existing 110. The number of operating rooms doubled to 4, with new intensive surgical and coronary care units and one additional cardiac catheterization room. The new facility opened in the fall of 1976. Yet to meet current needs and eliminate backlogs, this output should eventually increase to 2500. This goal is within reach with the recent construction of 7 state-of-the-art operating rooms including a high technology Hybrid room, inaugurated January 2009 (Figs. 2 and 3).



Figure 1. Jean-Paul David, Founder of the MHI.

Valvular and Aortic Surgery at the MHI

In the mid-1960s, cardiac surgery at the institute was equally divided between acquired adult (valvular) and pediatric (congenital) procedures. In the

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