

**Adult Congenital Heart Disease Fellowship Program
Clinical Fellowship**

For Adult Cardiologists

MAUDE Unit

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McGill University

Montreal Children's Hospital

Montreal General Hospital

Royal Victoria Hospital

Sir Mortimer B Davis Jewish General Hospital

Montreal, Quebec

Canada

Number of Positions: Maximum 2 per year

Fellowship Program Director: Dr. Judith Therrien

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Introduction

The MAUDE (McGill Adult Unit for congenital heart Disease Excellence) (Montreal Children's Hospital (MCH), Montreal General Hospital (MGH), Royal Victoria Hospital (RVH) and the Sir Mortimer B Davis Jewish General Hospital (JGH)) Cardiology Division, McGill University offer a 1 year or 2 year Fellowship program for Adult Cardiologists who desire to obtain Level 2 or 3 training (see reference 1) in adult congenital heart disease (ACHD).

Requirements

- 1) Completion or anticipated completion of a clinical adult cardiology residency program (Royal College, College des Medecins, or equivalent)
- 2) Complete C.V. submission
- 3) Three reference letters from Cardiologists
- 4) All candidates will be interviewed by the ACHD Training Program Director and staff (see below) and will be discussed for consideration.
- 5) Application will be via Minerva system and accredited through the McGill Cardiology Training Program and its Program Director.

Program Description

The ACHD Fellowship program should provide the Fellow with necessary knowledge in:

1. ACHD anatomy, physiology, clinical presentation and natural history of specific lesions
2. Diagnostic methods such as physical examination, electrocardiography, chest roentgenogram, echocardiography (both transthoracic and transesophageal) catheterization, angiography, cardiac MRI and cardiac CT
3. Therapeutic methods such as pharmacological treatment, catheter interventional procedures and surgical procedures
4. Residua and sequela of surgical and catheter interventions
5. Reproduction issues such as contraception, counseling for pregnancy as well as management during pregnancy and delivery
- 6) Evaluation for non cardiac surgery
- 7) Management of pulmonary vascular obstructive disease
- 8) Employment and leisure activities counseling
- 9) Insurability, socioeconomic and psychological issues

Below is the weekly schedule containing all the cardiac congenital activities ongoing at the MAUDE Unit.

The 1 year Fellowship will permit the candidate to achieve Level 2 training competence in ACHD and the 2 year Fellowship program will permit the candidate to achieve Level 3 training competence in ACHD (1).

More specifically, during the 1 year ACHD Fellowship Program, the trainee will be required to participate in:

- 1) Four to six outpatient clinic per week organized for the care of ACHD
- 2) Two to four outpatient echocardiography clinic per week organized for the care of ACHD

3) 1 MRI clinic per week organized for the care of ACHD

4) 1 cardiac catheterization session per week

Monday Tuesday Wednesday Thursday Friday

am RVH Interventional

Catheterization

+

TEE

Congenital

Clinic

+

Echo

Congenital

Clinic

+

Echo

Congenital

Clinic

+

Echo

Research

am JGH Pulmonary

Hypertension

Clinic

Congenital

clinic

am MCH Pediatric

Catheterization

+

Pediatric

Surgery

Pediatric

MRI

Pediatric

Catheterization

+

Pediatric

Surgery

Noon ACHD Surgical

Conference

pm RVH Congenital

Clinic

+

Echo

Congenital

Clinic

+

Echo

Congenital
Clinic
+
Echo
Research
Meeting
pm MCH Pediatric
Surgical
Conference
Pediatric
Catheterization
+
Pediatric
Surgery
ACHD
MRI
Pediatric
Catheterization
+
Pediatric
Surgery

- 5) Option to observe in the operating room during CHD surgery and assist with intraoperative TEE
- 6) Option to participate in 1 clinic of pulmonary hypertension per week
- 7) 1 cardiac pediatric/surgical conference per week
- 8) 1 ACHD/surgical conference per week
- 9) 1 research meeting per week
- 10) 1 monthly electrophysiology clinic organized for the care of ACHD

In addition to the aforementioned requirements and activities for level 2, level 3 training Fellows will need to have performed at least:

- 1) 40 diagnostic cardiac catheterization in CHD (140 are done yearly)
- 2) 300 transthoracic echocardiograms (inpatients or outpatient) (683 done yearly)
- 3) 50 transesophageal echocardiograms (intraoperative or outpatient) (100 done yearly)
- 4) Be able to interpret advanced imaging techniques such as MRI and CT scan (over 50 done yearly)
- 5) Be involved in and complete at least 2 ACHD research projects (see research below) leading to 2 manuscripts publication in cardiology leading journals.

Faculty

Core

Dr. Ariane Marelli MD, FRCPC
Professor, Division of Cardiology - MUHC

Scientific Director of the MAUDE Unit, McGill University
ACHD Fellowship: University of California, Los Angeles, USA

Dr. Judith Therrien MD, FRCPC
Professor, Division of Cardiology – JGH and MUHC
Director of the MAUDE Unit, McGill University
Director of the Fellowship Program, MAUDE Unit, McGill University
ACHD Fellowship: Royal Brompton Hospital, London, England
Toronto General Hospital, Ontario, Canada

Dr. Giuseppe Martucci MD, FRCPC
Assistant Professor, Division of Cardiology – MUHC
Director of interventional ACHD catheterization
ACHD Fellowship: Boston Children’s Hospital, Harvard Medical School, Boston, USA

Natalie Bottega MD, FRCPC
Assistant Professor, Division of Cardiology – MUHC
Director of ACHD and Pregnancy clinic
ACHD Fellowship: Mayo Clinic, Minnesota, USA
Toronto General Hospital, Ontario, Canada

Renee Schiff, MD, FRCPC
Assistant Professor, Division of Cardiology – MUHC
ACHD Fellowship: Royal Brompton Hospital, London UK
Ali Albualsaud, MD, FRCPC
Assistant Professor of Medicine
ACHD Fellowship: MAUDE unit, McGill University

Christo Tchervenkov MD, FRCSC
Professor of Medicine, Division of Cardiac Surgery – MUHC
Director of the Congenital Heart Disease Center of Excellence
Surgical Fellowship: Boston Children’s Hospital, Harvard Medical School, Boston, USA
Chair: President of the Children’s World Society

Pierre Luc Bernier
Assistant Professor of Medicine, Division of Cardiac Surgery – MUHC
Surgical Fellowship: Children’s Philadelphia
Columbia, New York

Support

Luc Jutras MD, FRCPC
Assistant Professor of Medicine, Division of Pediatric Cardiology – MUHC
Director of non-invasive Laboratory, Montreal Children Hospital
Pediatric Fellowship: San Francisco, USA

Adrian Dancea MD, FRCPC
Assistant Professor of Medicine, Division of Pediatric Cardiology – MUHC
Director of the Pediatric Catheterization Laboratory, Montreal Children Hospital
Pediatric Fellowship:

David Langleben MD, FRCPC
Professor of Medicine, Division of Cardiology – JGH
Director of the Center for Pulmonary Vascular Disease, JGH
Fellowship: Boston, USA

Nadia Giannetti MD, FRCPC
Assistant Professor of Medicine, Division of Cardiology – RVH
Director of Heart Failure Clinic
Fellowship: Stanford, California, USA

Renzo Cecere MD, FRCSC
Assistant Professor of Medicine, Division of Cardiac Surgery - RVH
Director of high risk Surgery
Fellowship: Stanford, California, USA

Facilities

Royal Victoria Hospital

MAUDE Unit

The MAUDE Unit located at the Glenn site is a 177 meter squared unit with 3 examining rooms each equipped with a computer, 1 conference room equipped with a computer, review station and projector and 1 echo room with a Vivid 7 GE echo machine and a viewing station. There are 2 dedicated secretaries, 1 full time clinician nurse, 3 biostatisticians, 1 dedicated echo sonographer attached to the MAUDE Unit. Fellows have their dedicated room, desk and own computer. A computerized clinical data base as well as complete report system renders the clinic paperless and provides for a very efficient flow. The MAUDE Unit sees about 1000 outpatients per year (see Appendix 2), the majority of the cases coming from the Montreal Children Hospital. The MAUDE Unit performs over 500 transthoracic echos per year. Access to transesophageal echo, stress and dobutamine echo is provided by the core RVH echo lab (see below). Weekly surgical and research meetings as well as monthly teaching sessions are held in the conference room.

Echocardiography Laboratory

The echo lab at the RVH is a state of the art laboratory with 5 Vivid 7 GE machines situated down the corridor from the MAUDE Unit. Their annual volume totals about 5000 procedures per year. ACHD transesophageal echo, stress and dobutamine echos are performed in the core RVH echo lab.

Cardiac Catheterization Laboratory

The catheterization lab is a biplane laboratory dedicated to the care of ACHD.

Diagnostic as well as interventional procedures such as percutaneous valves and occlusion devices are performed on a weekly basis for a total of about 100 per year (see Appendix 2). The cardiac cath lab also has a dedicated echocardiography machine for TEE procedure peri catheterization intervention.

Surgical Operating Room

About 50 open-heart ACHD surgeries are performed on an annual basis. Left and right ventricular assist devices as well as in house transplant expertise are available for highrisk surgeries.

Montreal Children Hospital

Magnetic Resonance

State of the art MRI facilities and expertise is provided at the MCH. Over 60 cases per year are being performed.

Cardiac catheterization Laboratory

Pediatric cardiac catheterization are performed twice a week at the MCH in a state of the art biplane laboratory.

Surgical Operating Room

Four cases of pediatric cardiac surgery are performed at the MCH on a weekly basis. Cases are referred from throughout Canada.

Jewish General Hospital

Beth Raby Ambulatory Clinic

This outpatient clinic sees about 250 patients per year. Cases differ from the RVH outpatient clinic in that the patients are most often only recently diagnosed and unrepaired.

Echocardiography Laboratory

The echocardiography Laboratory at the JGH performs over 5000 studies per year. Access to 3D echocardiography can be used for clinical or research purposes.

Center for Pulmonary Vascular Disease

The Pulmonary Hypertension Center at the JGH is the largest in Quebec with over 700 patients being followed. All our ACHD patients with pulmonary hypertension are followed and treated co jointly with the Center.

Fellows Duties and Responsibilities

On call: The Fellow(s) will be responsible to round every week days on all the ACHD patients hospitalized (for medical treatment, surgical or catheter procedure) and report to the ACHD staff on duty. Weekend calls will be covered on a rotatory basis.

Teaching: The ACHD Fellow will be responsible for providing bed side teaching once a week to the in house staff looking after the in patients (e.g. CCU team looking after a patient hospitalized in CCU). As well, they will contribute to a series of didactic teaching given once a month to the cardiology residents completing their congenital 2 months' rotation. Fellows will be required to participate in the academic half day teaching to core cardiology residents on the subject of ACHD (2 half days per year minimum) as well as present once a year at Cardiology Grand Rounds.

Research (see Appendix 1).

Epidemiology

The MAUDE Unit owns the ACHD Quebec wide administrative database from 1983 to 2005 which contains 40 000 adult patients with congenital heart disease. Two biostatisticians and one PhD epidemiology student work on this database. Various manuscripts emanating from the database have already been published or presented as abstracts to international cardiology conferences

Right sided Heart Function

Non invasive quantitative assessment of right ventricular function, shedding light into right ventricular adaptation process to volume and pressure loading conditions, helping us determine the best timing for procedures on the right heart is also a focus of research at the MAUDE Unit, using echocardiography and MRI as quantitative tools.

Pulmonary Hypertension

Basic research as well as pharmacological randomized trials of patients with pulmonary hypertension is ongoing at the Center for Pulmonary Vascular Disease, JGH. This center is also one of the only 2 Canadian centers to perform stem cell research and transplant in patients with pulmonary hypertension.

Pregnancy

The high-risk maternal cardiac clinics affiliated with high risk obstetrics at the RVH and JGH will provide a background upon which clinical research can be undertaken looking at immediate outcome of patients with ACHD and pregnancies as well as long term outcome.

Genetic

The genetics of ACHD is an exploding field and plans are in place to start collecting blood in all our ACHD patients to be able to examine kindred's of patients with ACHD, more particularly patients with bicuspid aortic valves. This ACHD genetic blood database will be used for local as well as international collaborative research efforts.

Evaluation

The Fellows will be evaluated on a regular basis by all ACHD staff members. Verbal feedback will be given monthly by the Director of the ACHD Fellowship Program with written feedback a minimum of twice per year. Written evaluations will be done using the standard McGill evaluation format as well as Can Meds format as applicable. Fellow will be encouraged to feedback to the program director about all issues that concern him/her and that impact on

learning. A McGill Resident Feedback form will be given to the Fellow to submit to the Fellowship Director, who will consider the comments and make changes to the Fellowship program as needed to best suit the needs of the Fellow. In addition, the Fellow will complete a report at the end of the Fellowship, to be submitted to the Cardiology Program Director for McGill University.

Funding

The Beth Raby Fellowship endowment at the Jewish General Hospital provides ACHD fellows with an annual 45 000 \$ Canadian bursary allotted on the basis of need and merit. For information regarding salary amount and acceptable sources of funding please visit the link at http://www.medicine.mcgill.ca/postgrad/admission_fellowships.htm

Conclusion

McGill offers a 1 or 2 year postgraduate “hands on” fellowship program with expert faculty in ACHD, state of the art facilities, as well as cutting edge research opportunities to any graduate adult cardiologists who wish to make ACHD the focus of their academic career.