

APPLICATION FOR INTERVENTIONAL STRUCTURAL HEART DISEASE CARDIOLOGY FELLOWSHIP

NAME OF INSTITUTION: Mc Gill University Health Center

TYPE OF FELLOWSHIP: One year training in interventional structural heart disease (after completion of 1 year of interventional coronary fellowship).

ACADEMIC AFFILIATION: McGill University, MUHC Cardiology program.

NAME OF HOSPITALS: Royal Victoria Hospital

FELLOWSHIP PROGRAM DIRECTORS: Nicolo Piazza and Giuseppe Martucci

BACKGROUND:

In 2006, the MUHC concentrated all cardiology interventional activities at a single site (the Royal Victoria Hospital), and opened three state of the art cardiac catheterization laboratories, including a bi-plane unit. The two single-plane rooms were entirely updated in 2013 with new flat-plane image intensifiers, one of which is large enough to allow for structural and peripheral vascular interventions. Current equipment allows the performance of diagnostic studies (coronary disease, cardiomyopathies, valvular disease, pericardial disease, adult congenital disease), including ultra specialized diagnostic procedures such as intravascular and intracardiac ultrasound and fractional flow reserve. Therapeutic interventional procedures performed at the MUHC include coronary angioplasty and stent implantation, rotablation, use of percutaneous ventricular assist devices, ASD & VSD closure, LAA closure, balloon valvuloplasty, percutaneous valve implantation, and renal denervation.

This concentration of activities and standardization of care, with much tighter integration and professional formation of support staff, i.e. nursing and X-Ray technologists, has allowed us to provide level three interventional formations for suitably qualified cardiologists (ACC interventional task force). As well, it has allowed us to recruit well trained interventionalists, with varied procedural and research interests.

RESEARCH ACTIVITY

We currently have 2 full time research nurses, and are involved more than 10 collaborative trials. Dr. Piazza and Dr. Martucci are mentoring a team of more than 7 local and international juniors (undergraduate students, medical students, residents, and fellows) in the field of structural heart disease research with a focus towards transcatheter valve therapies, amongst others.

MISSION

There are three major missions of the cardiac catheterization laboratory: (1) clinical; (2) teaching and formation; and (3) research. Clinical activities revolve around diagnostic and therapeutic options for coronary, aortic, valvular, cardiomyopathies, pericardial and congenital heart disease. Some the activities therefore include percuta-

neous coronary interventions, transseptal punctures, endomyocardial biopsies, aortic and mitral valve balloon valvuloplasty, transcatheter valve implantation and repair, PFO/ASD/VSD closure, and cardiac assist devices (intra-aortic balloon counterpulsation, Impella).

McGill University Health Center provides interventional cardiology level three formation.

We are in the midst of collaborating on more than 10 clinical national and international trials, performing first-in-human procedures while critically appraising the risks/benefits, and housing a team of local and international juniors to perform research in the field of structural heart disease.

The intent in now providing interventional structural heart disease formation is to prepare suitable candidates for independent performance of interventional structural interventions such as, but not limited to, trans-septal catheterization, mitral valve balloon valvuloplasty, aortic valve balloon valvuloplasty, transcatheter aortic-mitral-and-pulmonary valve interventions, ASD/PFO closures, and left atrial appendage closure.

Thus, the candidate will develop a mastery of the indications, contraindications, and limitations of the various procedures. The candidate will learn to work within a multidisciplinary team (cardiologists, surgeons, anesthesiologists, nurses and technicians, and trainees of various levels).

ACADEMIC FACILITIES:

The MUHC cath lab facilities are concentrated at the Royal Victoria Hospital. The facilities consist of three cath lab suites (including a biplane room), integrated secretariat, and dedicated fellow conference room with AV equipment. As well, there is a fully monitored seven bed ward for pre- and post-cath procedures, a dedicated staff room and suitable sanitary accommodations. This produces a privileged working and learning environment, with close access to a reserved reading space and immediate, moment to moment access to staff physicians.

Our labs perform roughly 3,000 or more procedures per year, including 1,400+ interventional procedures. Within this, we perform approximately 40 transcatheter aortic valve interventions, 20-30 balloon aortic and mitral valvuloplasties, 20-30 ASD/PFO closures, and 30-40 complex congenital interventions per year.

FELLOWS DUTIES AND RESPONSIBILITIES:

The interventional fellow(s) will be expected, over the year, to develop satisfactory expertise in case selection, procedural judgment and technical ability, gathering and interpretation of hemodynamic and angiographic data in the following: valvular, congenital and left atrial appendage related procedures.

The candidate will be expected to master all aspects of large bore vascular access and closure, cardiac chamber and angiography, pericardiocentesis, temporary pacemaker insertion, trans-septal catheterization, aortic and mitral balloon valvuloplasty, transcatheter aortic valve implantation, PFO/ASD and left atrial appendage closure.

The candidate will be expected to perform at least 75-100 structural heart disease interventions – the vast majority as first operator. This will not be a problem with our present caseload. Furthermore, the fellow will keep a formal journal of completed procedures.

The candidate will be evaluated after the first 3 months to ensure that basic interventional skills have been already acquired prior to embarking on complex structural heart procedures. Thereafter, every 3-6 months the fellow will be evaluated on the following criteria: competent clinical follow-up, availability and reliability, complications, and quality of interpersonal (patients, staff and peers) and interdisciplinary relations, initiative, teaching and mentoring ability.

The candidate will become competent with pre-procedure evaluation, timely and informative reporting of results and therapeutic recommendations.

The candidate will be expected to arrive at work at 07:30 every working day, except for specified out of lab teaching opportunities (conferences, research activities) holiday or illness.

The candidate will be responsible for organizing the weekly hour long structural heart disease conference, with case presentations, including all major complications or difficult clinical cases during the preceding week. Furthermore, the fellow will collaborate with formal cath lab teaching to cardiology trainees. The candidate will be an active participant in the cath lab journal club.

The candidate will be supervised and directly responsible to the program director, but will work with other staff interventionalists to widen the range of clinical experience.

We truly believe that our group has acquired the necessary infrastructure and MD experience and competence to now offer selected candidates an instructive and rewarding learning experience, at the end of which the candidate will fully meet the necessary qualifications required by the appropriate governing bodies.

EDUCATIONAL RESOURCES:

- Weekly Cath Lab Rounds
- Manuscript writing
- Conference attendance
- Simulation Laboratory
- Animal laboratory

RESEARCH PROGRAM:

The McGill University Health Center is offering a 1-year ***Structural Interventional Cardiology Fellowship Program*** with special focus on structural heart disease and transcatheter valve therapies. The program will have both a clinical and research component. The structural interventional fellowship program has a starting date of July 1st of every year.

FELLOWSHIP REQUIREMENTS:

Applicants must have completed, (1) their basic cardiology residency and (2) at least one year of interventional cardiology training in coronary artery disease.

All fellows must undergo a period of observation of clinical performance lasting 3 months in the Cath Lab. This period of observation is done in the initial 3 months of the Clinical Fellowship. Successful completion of the observation period is mandatory in order to continue in the clinical fellowship.

Fellowship appointments are contingent upon being appropriately licensed to engage in clinical activities in the Province of Quebec.

The University of McGill Post Graduate Medical Education Office will assist in the process of registering as a fellow with the Division of Cardiology.

PROGRAM DESCRIPTION:

The Structural Interventional Fellowship should provide the fellow with necessary knowledge to:

1. Understand the complete hemodynamic assessment of congenital cardiac defects, including left to right shunt and right to left shunt lesions.
2. Understand the various aspects of angiographic assessment of congenital cardiac defects and the best angiographic projections for each defect.
3. Understand the proper radiation protection measures for the patients and operators in the cath lab.
4. Understand how to stock the cardiac cath lab with appropriate equipment and tools so that a procedure can be done effectively.
5. Learn the essential echocardiographic assessments of various interventional therapeutic procedures (ASD's/PDA's/VSD's/AS/PS/etc.).
6. Learn step-by-step how to close ASD's using various devices.
7. Learn how to perform effective balloon valvuloplasty of the aortic, mitral and pulmonic valves.
8. Learn how to perform transcatheter aortic valve implantation.
9. Learn how to perform transcatheter mitral valve therapies.
10. Learn how to perform embolization therapies for AP collaterals, coronary AV fistulas, pulmonary AVM's etc.
11. Learn the various diseases that present in adults with congenital heart disease and their management.
12. Learn how to perform pericardiocentesis.

13. Learn how to perform myocardial biopsies.

Furthermore, the fellow will be responsible for the organization of the transcatheter aortic valve and mitral valve databases that will be the basis for publication of peer-reviewed articles. In particular, we expect the fellow to publish 2-5 first author papers during the 1-year period. We would expect the fellow to submit abstracts to interventional cardiology congresses for presentation.

TEACHING FACULTY:

The fellow will be closely mentored and supervised by Dr. Nicolo Piazza MD, PhD, FRCPC, FESC and Dr. Giuseppe Martucci MD, FRCPC who are co-directors of the Interventional Structural Heart Disease and Transcatheter Valve Therapy program. Dr. Piazza obtained clinical and research training in transcatheter valve therapies from the Erasmus Medical Center from Rotterdam and the German Heart Center Munich under the supervision of Professor Patrick and Professor Ruediger Lange, respectively. Dr. Martucci obtained congenital training from the Boston Adult Congenital Hospital under the supervision of Professor James Lock and Dr. Michael Landzberg.

Dr. Luc Bilodeau is the director of the cardiac catheterization laboratory at the McGill University Health Center.