McGill University Division of Cardiac Surgery: Multi-Disciplinary Heart Failure, Cardiac Transplantation, and Mechanical Circulatory Support Fellowship

Name of Institution: McGill University

Location: McGill University Health Centre, Royal Victoria Hospital, Montreal Children's Hospital

Fellowship Title: McGill University Division of Cardiac Surgery: Multi-Disciplinary Heart Failure, Cardiac Transplantation, And Mechanical Circulatory Support Fellowship

Name of the Fellowship Director: Dr. Renzo Cecere

Program Information:

Funding: Fully funded

Number of fellowship positions requested: 1, minimum 1-year duration, option for 2-year duration

Academic affiliation: McGill University

Name of hospitals involved in training: MUHC Glen Campus - Royal Victoria Hospital, Montreal Children's Hospital

Mission:

The mission of the Heart Failure Program is to consolidate excellence in clinical care, basic and translational research, and training and education in surgical therapies for advanced heart disease, and is governed by a philosophy of innovation through multi-disciplinary collaboration.

Our intention is to provide a platform upon which new relationships with experts from other disciplines can be cultivated, to provide a sounding board for insightful and thought-provoking discussion on new approaches to cardiovascular disease, and to lead, supervise and coordinate investigations within this field.

Background:

The McGill University Health Centre has developed, in the last 20 years, a leading-edge Heart Failure, Heart Transplantation, and Mechanical Cardiac Assist Program, which has served as a model for multi-disciplinary care throughout Canada.

This Program strives to maintain the highest standard of care and to implement the most advanced and effective technologies available to meet the growing challenges presented by heart failure patients. In keeping with our paradigm of multi-disciplinary medical/surgical management strategies, and in accordance with advances reflected in general practice guidelines for cardiology and cardiac surgery, we have tailored our Program to offer a comprehensive selection of therapies and devices to best match the needs of the patient.

The Heart Failure Program offers Inpatient, Consultation, and Outpatient services, combining medical and surgical expertise in applying advanced diagnostic strategies, development and implementation of treatment plans, and post-intervention follow-up. Currently, the Program, through its Heart Failure Centre, conducts 3000 patient-visits per year, offering multi-disciplinary follow-up by a team comprised of Heart Failure specialists in Cardiac Surgery and Cardiology, Interventional Cardiology, Echocardiography, Magnetic Resonance Cardiac Imaging, Respirology, Infectious Diseases, Clinical Nutrition, Social Work, Cardiac Rehabilitation, and others. Approximately 1000 heart failure patients, 150 heart transplant patients, and 30 long-term Mechanical Cardiac Support patients are followed.

Since its inception, we have implanted approximately 250 durable mechanical cardiac support devices within our Program, with 10-20 implants per year, including 1st, 2nd, and 3rd generation technologies. Our Program offers a full array of devices suitable for short- or long-term support, uni- or bi-ventricular failure, acute decompensation/cardiogenic shock or chronic pump failure, and Bridge-to-Bridge, Bridge-to-Recovery, Bridge-to-Transplant and Destination Therapy. In addition, our Program extends to neonatal and pediatric heart transplantation, and mechanical cardiac assist with the Berlin Heart VAD System.

The MUHC Cardiac Surgery Service performs the full spectrum of surgical procedures in heart failure patients. In addition, an extensive ongoing experience exists in the areas of coronary revascularization, valvular surgery, trans-catheter valvular interventions, surgery for adult congenital heart disease, as well as neonatal and pediatric heart transplantation and mechanical support.

Teaching Faculty:

As this is primarily a multi-disciplinary Clinical Fellowship, the surgical Fellow will interact with teaching faculty from several areas of expertise. With the objective of gaining experience in the comprehensive management of a Heart Failure, Heart Transplantation, and Mechanical Cardiac Support Program, the Fellow will gain knowledge from faculty in many clinical specialties and sub-specialties, including:

Cardiac Surgery
Heart Failure Cardiology
Interventional Cardiology
Electrophysiology
Cardiac Imaging (Echocardiography, Magnetic Resonance, Computerized Tomography)
Critical Care Medicine

Clinical Activity:

The Clinical Fellow will integrate into the daily activities of the Division of Cardiac Surgery, with an emphasis on the practice of Heart Failure management, Heart Transplantation, and Mechanical Cardiac Support.

The Clinical Fellow will be a fully-trained, Board-eligible or certified cardiac surgeon. As such, the Fellow will participate actively in the teaching mandate of our Service, interacting with trainees at all levels of experience and expertise. Furthermore, the Fellow should serve as a source of support for trainees, providing advice and assistance in matters related to clinical patient care.

Clinical and Academic Facilities:

The clinical Cardiac Surgery Service performs approximately 1000 cardiac operations annually, including 10-12 heart transplants, 10-20 durable LVAD implants, and numerous short-term and catheter-based cardiac support device implants (Impella CP, 5.0, RP, Protek Duo, Centrimag, TandemLife, V-V/V-A ECMO). A hybrid Operating Room is available for procedures benefitting from real-time imaging. Post-operative care is delivered in a multi-system Intensive Care Unit, an Intermediate Care Unit, and Post-Op Cardiac Surgery Recovery Ward.

An On-Call Room in proximity to the Ward is shared by trainees in Cardiac Surgery.

A Resource Centre is available, with extensive services from librarians for assistance with literature searches and systematic reviews.

Full multi-media conference rooms are available within the Division of Cardiac Surgery.

Clinical Fellow Duties and Responsibilities:

The Clinical Fellow will be exposed to a wide variety of cardiac surgical procedures however, priority in assisting and performing these operations will be given to residents in the Royal College Accredited Cardiac Surgery program. The Clinical Fellow may be asked to support On-Call duties with the Chief Residents in Cardiac Surgery. The Fellow will collaborate with the Nursing staff, the Clinical Pharmacist team, and the Nurse Practitioners on the Ward and will help ensure the smooth flow of patients. The Fellow will also maintain effective communication with all surgeons, especially in regards to patient management decisions.

As an integral part of the multi-disciplinary fellowship mandate, the Clinical Fellow will participate actively in the structure and function of the Heart Failure Centre, the Heart Transplant Clinic, and the Mechanical Cardiac Support (VAD) Clinic. Two half-days per week will be dedicated to the Outpatient care of Heart Failure, pre- and post-Heart Transplant, and Mechanical Cardiac Support patients. Time management and priorities will be set in accordance with the Cardiac Surgery operating schedule.

In addition, the Clinical Fellow will devote one half-day per week in Cardiac Imaging. This time will be allocated to Echocardiography, Cardiac MRI, and CT Reconstruction/Interpretation.

The Fellow will collaborate with the Chief Residents in Cardiac Surgery to ensure that Junior Residents receive optimum supervision and are offered graded responsibilities in the care of all patients on the Service. The fellow may perform consultations on new patients. However, all cases should be reviewed and discussed with an Attending Surgeon prior to implementation of a care plan.

The Fellow should participate actively in sharing knowledge and teaching the clinical team. Tracking patient outcomes and presenting at Morbidity and Mortality Rounds will also be part of the Fellow's duties. The Fellow will have access to the Cardiac Surgery Training Program Administrative Assistant for support.

The Clinical Fellow should attend one international professional meeting (eg ISHLT, STS, AATS) financially supported through the Fellowship; any additional meetings will be at the Fellow's discretion.

Curriculum:

The Clinical Fellow's surgical exposure will vary depending upon the nature of the cases and the availability of housestaff, in particular Chief Residents. The operative exposure of senior and junior residents will be prioritized over that of the Fellow. The Fellow will have the opportunity to observe every case involving a heart transplant or implantation or removal of a mechanical cardiac support device.

The Clinical Fellow should also participate actively in the weekly didactic teaching Rounds available through the Division of Cardiac Surgery. These include, but are not

limited to, weekly Resident Teaching Rounds, Echocardiography Rounds, Multi-Disciplinary Cardiovascular Program Rounds, Cardiovascular Grand Rounds, Heart Catheterization Rounds, and Cardiology Service Rounds. The Fellow will also attend and present papers at Journal Club.

Research Activity:

Dedicated Clinical Research:

The Mechanical Cardiac Support Program has participated in numerous international clinical trials, including First-In-Human Trials. Opportunities, support, and expertise exist for systematic reviews and analyses of existing data and for introducing novel research protocols for retrospective reviews and clinical trials, for publication in peer-reviewed journals.

Basic and Translational Research:

The Basic and Translational Research activities of the Heart Failure Program are also well-developed. An extensive network of collaborators in the fields of Medicine, Science and Engineering, is in place at the hospital and university levels, with a common interest and focus on current and anticipated needs in cardiovascular disease. For example, we employ a range of biomaterials in designing novel approaches to clinical problems, in parallel with ongoing and expanding work in the area of biotherapeutics (cellular therapies).

Through private funding, federal programs, and strategic industry partnerships, a diverse portfolio of highly original projects, all within the area of knowledge and expertise of cardiovascular specialists, are housed in this Program. These initiatives, all patentable concepts, processes or biomedical products, are possible through the collaboration of the members affiliated with this Program.

The Clinical Fellow will have the option of undertaking a research project (**Research Track**) which will lead to a significant contribution to our understanding of a clinical or scientific problem related to end-stage heart disease. The anticipated Research Project must be clearly defined, and a proposal submitted for approval by the Fellowship Director, containing timelines, collaborators, funding, and resource requirements. In order for the Fellow to enter the Research Track, a proposal must be submitted and approved prior to final acceptance into the Fellowship. Clinical duties for the fellow in a Research Track will remain unchanged.

Performance Assessments:

Clinical evaluations and feedback will be provided by the Fellowship Director, both informally during the Fellowship training and formally at 3 month intervals. Formal evaluations include one-on-one verbal sessions and written evaluations based upon standardized CanMEDS criteria adapted to the fellowship-specific goals and objectives. Research evaluations and feedback will be provided by the research supervisor(s) in the form of 1-hour one-on-one sessions at least once per month at which time the fellow will present his/her research progress and results, as well as discuss problems and future directions.