

**Annual Report Division of Cardiology
Department of Medicine - Jewish General Hospital
January 1, 2016 - December 31, 2016**

SUMMARY

Introduction

The JGH Division of Cardiology had a very productive year in the areas of clinical care, teaching and research. Our Division began the formal process of consolidation with the Division of Cardiac Surgery to initiate a unique patient-centred approach to care delivery, based on the IPU or “integrated practice unit” approach. Our Heart Team approach allowed for advancement of our robotic cardiac surgery program, and through our move to a new state-of-art cardiac floor in Pavilion K we provided full continuity of care to our patients. We inaugurated the first multi-modality Echo-MRI Imaging Fellowship, and we continued ground-breaking research in frailty and pulmonary hypertension. Dr. Rudski assumed the role as President of the Canadian Society of Echocardiography. Many members advanced the teaching, clinical and research missions of the JGH and McGill, as well as improved patient outcomes, patient experience and resource utilization. In addition, we began an academic cardiac MRI program, under the leadership of Dr. Jonathan Afilalo, in partnership with the Department of Radiology. Our cardiac program, through the integration with cardiac surgery, has recruited Dr. Emmanuel Moss and under his leadership, we have begun a cardiac robotics program performing robotic CABG and valve repair - the only such program in Quebec.

Innovation in Clinical Services

Novel Clinical Initiatives

2016 represented a major transformation for delivery of clinical care at the JGH, with a move to Pavilion K – the Critical Care Pavilion, and with the merger of the Division of Cardiology together with the Division of Cardiac Surgery. In this international first, each clinical teaching unit is comprised of both surgical and medical patients, and is staffed by physicians, surgeons and advanced nursing resources. With this patient centered care delivery model, continuity of care is ensured during all phases of the patient’s hospitalization, and all the necessary expertise is provided on a daily basis through a comprehensive heart team approach. Post-discharge care is similarly improved through this multi-disciplinary approach. Additional program development included the establishment of a pericardial diseases program directed by Dr. V Mardigyan, and a formal cardiac palliative care program, directed by Dr. Caroline Michel.

Academic activities continue to face significant challenges in our current health care delivery model. Rising clinical demands have transformed the focus of health care at academic centers from a balance of clinical activity, teaching and research to a more service-oriented model with time constraints to complete consultations 24/7. Ever-increasing volumes, in the absence of new personnel make this model unsustainable. Cross-appointments have been restricted, placing further pressure on the system.

The key threat to clinical activities is a diminishing budget to meet the current volumes of activity,

and even more so, to keep up with the rapid advances in cardiology – a field that is highly dependant on technology. The JGH has not been able to implement a TAVR program due to budgetary constraints. In addition, cath lab procedures are restrained by budget. Finally, several cardiac intensive care unit beds are not funded. As noted above, the clinical needs exceed the number of PEMs available and the inability to recruit FTEs and associate members puts additional strain on our ability to provide the care that our patients deserve.

The Division boasts the development of integrated cardiovascular unit in a way that has never been achieved anywhere else in North America.

With the support of the JGH we designed and built a new expanded heart failure clinic with a design leading to increased patient comfort and the ability to better serve their needs.

Geriatric Cardiology: Provides frailty assessment consultation service for patients referred by cardiologists and surgeons. Dr. Afilalo founded the McGill Geriatric Cardiology Fellowship Program, the first of its kind in Canada.

Constant new techniques and material to open coronary arteries

Center for Pulmonary Vascular Diseases: Under the leadership of Dr. David Langleben, our internationally recognized Center continued to perform cutting edge research as well as introduce of 3 novel PH medications to Quebec.

Cardio-Oncology: The Jewish General Hospital's Cardio-Oncology Program has continued to grow. The clinic has successfully been integrated into the physical space of our Heart Failure Clinic which allows for better access to multidisciplinary care for our patients. We are increasingly recognized as colleagues in the multidisciplinary approach to cancer patients, by our Oncology colleagues.

Pericardial Diseases Program: In 2016, first line treatment for patients requiring pericardial Drainage has been a pigtail catheter with extended Drainage inserted percutaneously, done in the Cardiac Unit. Dr. Mardigyan has begun to introduce novel molecules to treat complex and recurrent pericarditis. He presented at a national meeting on complex pericardial diseases and has begun receiving referrals from numerous institutions in the city and beyond.

Heart Failure Palliative Care Program: The Cardiac Palliative Care Service formalized its association with the Division of Palliative at the JGH and now has a dedicated Palliative Care Nurse. Supportive Care Clinics and a multidisciplinary approach aim to provide optimum care to patients and their families. The HF Palliative Care Service has presented its research at international conferences.

The new JGH Heart Failure clinic is magnificent and efficient, allowing us to deliver optimized delivery of care to heart failure patients, cardio oncology patients and patients who are at the end of life.

Cardiac Catheterization and Percutaneous Coronary Intervention: The JGH cath lab has developed into a Canadian leader in the treatment of patients with chronic occlusions with expertise in clinical and research arenas. Dr. Joyal formed a partnership with the CHUM and looks forward to joining forces with Dr. Stefane Rinfret to increase our shared experience and patient pool to

improve clinical outcomes and to collaborate in a research program. Dr. Abualsaud was hired in an interim manner to initiate outreach to the MUHC in the field of TAVR (Transcatheter aortic valve replacement)

Echocardiography at the JGH: All patients undergoing valvular surgery are now benefitting from 3D technology to guide the surgeon pre-operatively. In addition, Dr. Sebag led the introduction of 3-dimensional echocardiography into routine clinical practice to more accurately evaluate left-ventricular function, particularly in the setting of chemotherapy patients and patients with coronary disease. Other novel techniques such as deformation imaging are also used in a routine fashion in patients receiving chemotherapy, valvular heart disease and cardiomyopathies.

1. Research and publications:

Research focused on a number of domains focusing on the evolving field of frailty (Dr. Jonathan Afilalo), Smoking cessation (Dr. Mark Eisenberg), Pulmonary Hypertension (Dr. David Langleben), Heart Failure (Dr. Richard Sheppard) among others.

Below are listed some of the more notable publications of our Division:

--Afilalo J, Kim S, O'Brien S, Brennan JM, Edwards FH, Mack MJ, McClurken JB, Cleveland JC Jr, Smith PK, Shahian DM, Alexander KP. Gait Speed and Operative Mortality in Older Adults Following Cardiac Surgery. *JAMA Cardiol*; 2016 Jun 1;1(3):314-21

--Eisenberg MJ, Windle SB, Roy N, Old W, Grondin F, Bata I, Iskander A, Lauzon C, Srivastava N, Clarke A, Cassavar D, Dion D, Haught H, Mehta SR, Baril JF, Lambert CR, Madan M, Abramson B, Dehghani P. Varenicline for Smoking Cessation in Hospitalized Patients With Acute Coronary Syndrome. *Circulation* 2016; 133:21-30

--Ghofrani HA, Grimminger F, Grunig E, Huang Y, Jansa P, Jing ZC, Kilpatrick D, Langleben D, Rosenkranz S, Menezes F, Fritsch A, Nikkho S, Humbert M. Predictors of long-term outcomes in patients treated with riociguat for pulmonary arterial hypertension: data from the PATENT-2 open-label, randomized, long-term extension trial. *Lancet Respir Med* 2016;4:361-71

--Sheppard R, Hsieh E, Damp J, Elkayam U, Kealey A, Ramani G, Zucker M, Alexis JD, Horne BD, Hanley-Yanez K, Pisarcik J, Halder I, Fett JD, McNamara DM; IPAC Investigators. GNB3 C825T Polymorphism and Myocardial Recovery in Peripartum Cardiomyopathy: Results of the Multicenter Investigations of Pregnancy-Associated Cardiomyopathy Study. *Circ Heart Fail* 2016 Mar; 9(3):e002683.

2. Teaching and learning (undergraduate and graduate):

Major Achievements in Pedagogy

The JGH welcomed its first Fellow into a unique program in Canada, combining Echocardiography and Cardiac Magnetic Resonance imaging into a two year complementary and simultaneous training Fellowship. Dr. Mark Eisenberg continued in his post as director of the MD-PhD program at McGill, mentoring 16 students. Dr. Regina Husa began a McGill-wide internal review of over 200

specialty programs as McGill's Director of Accreditation.

The JGH continues to be a leading and innovative site in teaching in undergraduate and post-graduate programs. An active echocardiography program trained several level 3 cardiologists and introduced a new simulation-based curriculum using the CAE echo simulator. Our very busy clinical service provided an excellent environment for clinical trainees. Dr. Annabel Chen-Tournoux took over as co-Training Director (with Dr. Natalie Bottega), replacing Dr. Regina Husa who is now in charge of accreditation of all programs supervised by the McGill Post-Graduate Accreditation Office.

Involvement in the Community:

The JGH members participated in the EMSB-Secondary V HOPS program, welcoming students weekly from numerous schools in Montreal. Under the directorship of Drs Igal Sebag and Lawrence Rudski, as well as Chief Sonographer MJ Blais, the JGH Hosted the 7th Annual JGH-McGill Imaging Symposium in June, with over 200 participants. Dr. Lawrence Rudski co-chaired the 18th annual Canadian Echo Weekend (Canadian Society of Echocardiography) in April, with over 600 attendees. Dr. Jonathan Afilalo co-chaired McGill's Annual Cardiology Research Day. Dr. David Langleben was a member of the Steering Committee, International PH Science Forum, Berlin, Germany, April 2016. Numerous JGH Faculty presented around the world at international conferences and fora.

Ali Omar Abualsaud, MD

- Undergraduate: 2 hours
- Postgraduate: Academic half days - 4; McGill Cardiovascular Research Day – 1
- Grand Rounds (MUJC) – 1; Divisional Rounds – 33 hours; other Rounds – 34 hours
- Teaching: 40% teaching undergraduate and postgraduate students
- Ward / Inpatient: 7 weeks per year
- Consult Service: 2 weeks per year
- Outpatient / Clinic: 2 three half days a week
- Procedures: 1 day a week – Cath lab

Annabel Chen-Tournoux, MD

Undergraduate:

- EKG II: 1 hour, and Cardiovascular physical exam: 4 hours

Postgraduate:

- Consult service: 4 weeks per year
- JGH Echo lab, stress test: 3-4 half days
- Revision and organization of academic half-day curriculum for cardiology residents
- Innovative teaching approaches by live polling in talks to engage audience & gauge understanding
- Co-Director, Cardiology Residency Program

Other

- Teaching director, JGH Cardiology consults & CVIPU rotations
- CCU rounds (students, residents, fellows) 10 Hours
- OPD clinics (residents, fellows, students) 3 half days/week

- Ward/inpatient: 4 weeks per year
- McGill postgraduate: member Internal Medicine Residency Program Committee
- CARMS interviews for Internal Medicine residency program
- McGill Leadership Development Program: 21.5 hours
- Medical Education Rounds: Work-based assessment: 1 hour
- The Resident in Difficulty – It’s time to remediate: 3.25 hours
- Teaching and Learning in a Millennial Environment: 3.25 hours
- Publications: Mechanical complications of myocardial infarction
- Manuscripts reviews (ad hoc): American Journal of Cardiology (1); Circulation (4); Journal of Cardiovascular Ultrasound (1); Journal of Ultrasound in Medicine (1); Journal of the American Heart Association
- Attendance at Divisional rounds: 49
- Judge, McGill Cardiovascular Research Day, Clinical / Population Science 2016

Mark J. Eisenberg, MD MPH FACC FAHA

Undergraduate & Postgraduate:

- Teaching 3 credit biweekly seminar course for McGill MD PhD students
- ECG 1 teaching for Internal Medicine
- 1.5 hrs for each of the 14 sessions of the MD-PhD Seminar Series
- Individual meetings with each of the MD-PhD students, once a year
- 4 weeks / year in CVICU rounds (5.5 hours / day, 5 days a week)
- Ward / inpatient: 4 weeks
- Consult service: 2 days a month
- Outpatient clinic: ½ day a week
- Cath lab: 1 day a week; 1 in 4 calls for the Cath lab
- Weekly discussions with referring physicians & students who refer patients to the Cath lab
- Cardiac catheterization laboratories (>160 hrs/year) – Cardiology fellows
- Created Syllabus/Teaching File for cardiology fellows rotating through the cath lab
- Consultations (>120 hrs/year) – Cardiology Fellows, Residents, Medical students
- Nuclear and Treadmill (General Internal Medicine fellows)
- Supervised 3 medical students for 8 week bursary/research electives
- Received a summer 2016 McGill medical student bursary
- Internal grant reviews for fellow LDI researchers
- Academic Unit Review of the Dept. of Family Medicine, Cyclical Unit Review Office, McGill U.
- Conducted 5 manuscript reviews for the Cochrane Heart Group, Circulation: Cardiovascular Quality and Outcomes, Public Health Reports (2 reviews) & the Canadian Journal of Cardiology
- Attendance at Medical, Divisional & other Rounds: 49 hours
- Wrote a book entitled Coronary Anomalies & Cath Lab Disasters
- Enrolled in the CIHR-funded Evaluating the Efficacy E-Cigarette Use for Smoking Cessation Trial; enrolled in the CliPP-funded The Bright Light Therapy Efficacy for Depressive Symptoms Following Cardiac Surgery or Acute Coronary Syndrome: Pilot Trial.
- Submitted grant to CIHR and HSFC “The Efficacy & Safety of Hybrid Coronary Revascularization for Multivessel Coronary Artery Disease: A Network meta-Analysis”

Regina Husa, MD

- Medical Class Lecture & Workshops: 7 hours
- Academic half days: 10 hours

- McGill administrators: 3 hours
- Program Directors: 6 hours
- Cardiology Resident research project supervisor
- Attendance at Divisional Rounds: 35 sessions
- Attendance: other rounds: ICRE 5 days
- Workshop on teaching clinicians how to model positive behaviour in clinical teams
- 6 weeks CCU/year
- Consult service: 6 weeks
- Outpatient clinics/week: 3 half days / week
- TEE stress echo: 1 day per month
- Royal College Surveyor (National) preparing new national Accreditation Standards including other Canadian Universities to pilot new Accreditation formats.
- Cardiology Division Practice Plan Committee, JGH
- McGill Internal Review Accreditation Committee
- PGME Executive Committee
- FPGEC Committee
- PEEC Committee; Can MEDS Roles
- Cardiology Residency Training Program Promotions Committee
- Science Fair Judge, St. George's High School

Joyal, Dominique, MD

Undergraduate: Teaching medical students on consult service

Postgraduate: Teaching residents on consult service and cath lab

- CCU: 1 month per year
- Consult service: 1 month per year
- Outpatient / Clinic: 4 half days per week
- Cath lab: 1-2 days a week
- EURJ Interv cardiol
- Montreal Heart Institute Heart Team Summit
- CTU in multi-vessel disease

Langleben, David

-Teaching on wards and CCU 7-8 weeks/year

-Postgraduate: Teaching in PH clinic: 20 hours/year (students, residents, fellow & postgrad program)

- CVICU & CVU: 100 hours per year
- Helping cardio fellows write papers: 20-30 hours per year
- Clinical Supervision: Consult service 1 week/year; OPD clinic 9-10 half days per week
- Member, P&T Committee, JGH
- Chair, JGH Medical Records Committee

Vartan Mardigyan, MD

-Postgraduate: 10 hrs didactic teaching to cardiology fellows

-Clinical Supervision: Procedures, bedside teaching, etc: 40 hours; cardiology resident: 10 hours

- Internal Medicine residents: 10 hours
- Ward / inpatient: 4 weeks per year
- Consult Service: 6 weeks per year
- Outpatient / Clinic: 6 half days per week

- Procedures: 250 pacemaker implants; 35 pericardiocentesis with Drain placement
- RUIS / Outreach: 3 hrs
- Divisional and other Rounds: 82 hrs
- Completing chapter in book: Echocardiography in pericardial diseases
- Presenting at CSE on echocardiography in pericardial diseases

Lawrence Rudski, MD

- Mentored residents in writing book chapters in an echocardiography text book and was interviewed as an international mentor for the ACC's Fellow-in-training website
- Grew a number of programs including cath, echocardiography, MRI and robotic surgery as well as clinical research, during a climate of contraction
- Co-director for regional meeting & Canadian Society of Echocardiography annual echo weekend
- Undergraduate: 4.5 hours - Expert physician rounds; small group physical exam sessions
- Ward / Inpatient: 8 weeks CVICU / CVU
- Consult Service: 4-5 weeks
- Outpatient / Clinic: ½ to 1 day per week
- Procedures: 2.5 days per week echo
- RUIS: 3 evenings per year
- Developed integrated cardiovascular unit
- Divisional Director: 750 hrs / year
- Director, Integrated Cardiovascular Sciences Program
- Member – Table des Chefs – 10 hours
- President – Canadian Society of Echocardiography – 100 hours
- Governor – American College of Cardiology
- Co-Director – JGH/McGill Annual Imaging Conference
- Expert Reviewer – Board of Governors - American College of Cardiology
- Editorial Board – Journal of the American Society of Echocardiography
- Reviewer – JASE, Circulation, JACC, JACC Imaging, Eur H J -CV Imaging, Circ Imaging, Can J Cardiol
- Member – RQCT – Réseau Québécois de Cardiologie Tertiaire
- Rounds (Divisional, Medical Grand Rounds, other Rounds / conferences : 72 hours
- Ongoing mentorship of several faculty members
- Member – Royal College of Physicians & Surgeons of Canada – AFC Committee for Echo
- Presentations / speaker: Amer. College of Cardio Annual Scientific Sessions 2016; Canadian Society of Echocardiography Annual Echo Weekend; ASE Board Review Course; ASE Annual Scientific Sessions; IMEX International Multimodality Imaging Conference – Mexico; European Association of Cardiovascular Imaging – Leipzig, Israel Heart Society – Tel Aviv

Caroline Michel, MD

- Undergraduate: 1 lecture annually on Cardiac Palliative Care; 1 on physical exam; 2 hours annually on ECG interpretation
- Postgraduate: 1 lecture annually to Family Med Residents on Heart Failure; 1 lecture annually to Palliative Care residents on end stage heart failure; 10 hours in the Heart Failure Clinic
- Teaching: CCU & Consult Service – 180 hours; echo lab – 96 hours; teaching residents in HF clinic – 10 hours
- Medical students research project & Resident project – 50 hours per year
- Medicine and Simulation Centre 50=6- hours

- Clinical Supervision: Consults 160 hours, CCU, 320 hours, Echo Lab 500 hours; Heart Failure Clinic 20 hours
- Ward / inpatient: 8 weeks per year
- Consult service: 4 weeks per year
- Outpatient / Clinic: 3 half days per week
- Procedures: Echos: 1200 per year
- Administrative Director of the Division of Cardiology at JGH
- Rounds (Medical Grand Rounds, Divisional Rounds & Other): 55

Igal Sebag, MD

- Undergraduate: Intro to Cardiovascular Pathophysiology, The cardiovascular physical examination: Theory – 2 hours
- Postgraduate: 13 hours
- McGill cardiology Academic Teaching, lecture (10 fellows): 3 hours
- Advanced Training in Echocardiography (Fellowship and Teaching Director in Echocardiography)
- McGill-trained (Cardiology, Internal Medicine or Intensive Care Unit trained) 2 Echocardiography Fellows; 2 National/International Echocardiography Fellows
- Clinical Teaching
- Echocardiography Laboratory (150 hours/year) - Echocardiography Fellows and Core Cardiology Fellows
- Coronary Care Unit and Consultation Service (>150 hours/year) - Medical students, Residents and Cardiology Fellows
- McGill Representative on the Scientific Program Committee of the Quebec Cardiologists' Association (2 conferences/year) 10 meeting hours/year
- Program Committee Member for the Annual Meeting of the Canadian Society of Echocardiography (and member of the Board of Directors of the Canadian Society of Echocardiography), Contribution to designing the scientific content of this Canadian-wide meeting (500 attendees from across the country)
- National/International Echocardiography Fellows: 1
- Co-director of the Seventh Annual Symposium on Cardiovascular Imaging
- CCU & CTU: 8 weeks per year
- Consult Service 4 weeks per year
- Outpatient clinic: 1-2 half days per week
- Procedures 6-7 half days a month; Interventional echo: 1-2 days a month; specialized 3-D echo: 3-4 studies per day
- Coordinate & design Quality Assurance monthly rounds; specialized 3-D echocardiography (3-4 studies per day); Interventional echocardiography: 1-2 days / month – MUHC Glen site
- Director – Echocardiography and Non-Invasive Cardiology: 3 hours a week
- Fellowship/Teaching Director in Echocardiography: 1-2 hours a week
- Member of the core McGill Cardiology training program committee
- Member of the Board of Directors, Canadian Society of Echocardiography
- Member of the Scientific Program Committee for the Annual Meeting of the Canadian Society of Echocardiography
- Rounds (Grand Medical and Divisional): 57 hours; other rounds: 1 in Germany, 1 in Montreal, 1 in Toronto

Richard Sheppard, MD

- Small group sessions with medical students, residents and cardiology subspecialty residents
- Participation in academic half day for internal medicine and cardiology programs
- Ward / Inpatient: CCU – 10 week per year
- Consults: 3-4 weeks per year
- Outpatient clinics: 5 half days per week when not on service
- Procedures / Interventions: 3 half days stress tests per week
- Committees / Organizations: P&T for heart failure medication; Residency Training Committee for cardiology program; SQIC conference planning
- Rounds: Medical Grand Rounds: 5-10 per year; Divisional Rounds: 2-3 per week; other rounds – national or international: 2-3 per year
- Editorials: AJH – 1 manuscript review 2016
- Presentations: April 2016: Case based approach to management of Heart failure in the modern era – Lakeshore Hospital cardiologists

Judith Therrien, MD

- Undergraduate: 3 hours
- Postgraduate: 4 hours of lectures
- CCU teaching: 40 hours per year (8 weeks per year)
- Cardiology Consult Service teaching: 20 hours per year (4 weeks per year)
- Echocardiography clinic (teaching): 96 hours per year (46 weeks per year)
- Adult Congenital Heart Disease clinic (teaching): 144 hours per year (46 weeks per year)
- General Cardiology clinic: 48 weeks per year
- Research trainee supervision:
- ACHD Fellow with direct supervision of the ACHD fellow
- Thesis Advisory Committee for the Master of Science program of Experimental Medicine at McGill University
- Thesis Advisory Committee for the Doctorate of Science program of Chemical Engineering at McGill University
- Lectures: Lecture to cardiologists from Joliette, Quebec in May 2016; Lecture to Cardiology Grand Rounds at MUHC; Lecture at the Emirates Cardiac Society Congress, Abu Dhabi
- Clinical Innovation: TAPS Patent Application, McGill University; Multidisciplinary Aorta clinic at MUHC – Sept. 2016
- Committees / Programs: Training Program Director for Adult Congenital Heart Disease Fellowship at McGill University
- Professional Activities: Medical Grand Rounds: 2 hours; Divisional Rounds: 45 hours; Other: 3 day conference in Abu Dhabi
- Editorial activities: Reviewer for Circulation, JACC, AJC, International Journal of Cardiology, Cardiology in the Young, Expert Review of Cardiovascular Therapy, Congenital Heart Disease Journal, Intensive Care Medicine, Heart and Vessels, Heart Journal of Cardiovascular Magnetic Resonance, Canadian Journal of Cardiology
- Scholarly Activities: Canadian Cardiovascular Society Guidelines on the Management of Adults with Congenital Heart Disease

Ann Walling, MD

- Undergraduate: 16 hours
- Clinical Teaching: 60% per week (echo lab, CCU, consults stress tests)
- Consult Service: 4 weeks per year

- Outpatient / Clinic: -4-5 half days/week for 35 weeks
- Clinical Innovation: CVPC clinic now open to Herzl rapid access patients with chest pain
- Rounds & Meetings: Rounds – 53 hours; meetings - 12 hours
- Procedures: 40% in echo lab; 1-2 stress tests per month

3. Involvement in the community:

The JGH Division of Cardiology welcomed top grade 11 students from the EMSB and private day schools to weekly observerships in its Division. In addition, the Center for Pulmonary Vascular Disease held its annual information day and walk for a cure for their PH Patient support group, attracting members from all of Quebec. Dr. Husa was a Science Fair judge at St. George's High School.

4. Partnerships:

The division collaborates with the McGill University Health Centre in key areas of congenital and structural heart disease, heart failure, arrhythmia and imaging and several key research arenas. We established a joint program with the CHUM to treat patients with chronic total coronary occlusions using innovative catheterization techniques. We have well-established research collaborations with numerous sites in the USA (Massachusetts General Hospital, University of Pittsburgh) and Europe (Hammersmith Hospital, London UK, Attikon University Hospital, Athens Greece), Soroka Hospital, Ben Gurion University of the Negev, Beer Sheba, Israel), among others

5. Milestones:

Dr. Lawrence Rudski was promoted to Full Professor. Dr. A. Abualsaud was recruited in 2016.

6. Honours, awards, and prizes:

Dr. Lawrence Rudski assumed the position of President of the Canadian Society of Echocardiography – the largest affiliate of the Canadian Cardiovascular Society. Dr. Jonathan Afilalo received the Young Investigator Award 2nd Prize, Canadian Cardiovascular Society, Montreal, QC, 2016

7. Fundraising: None reported

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

The Division strives for excellence in cardiovascular care through an academic, integrated, multidisciplinary patient centered approach.

The Division aims to create a leading cardiovascular sciences center combining excellence in education, meaningful research and innovative clinical care through a patient-centered experience. It

will leverage the skills and resources of the Departments of Medicine, Surgery, Nursing and Multidisciplinary Care. By maintaining the focus on the patient, the health care system marshals its resources towards the singular aim of a successful outcome, medical and psychosocial. Improved access, cutting edge technology, both medical and information technology - and the implementation of best practices are essential components of this Institute. In addition, as the flagship institution of the CIUSSS Centre-de-l'ouest-de-l'île, the Division at the JGH will create pathways to ensure a smooth transition for the patient back to the community and its first line services. Through the creation of a learning center, teaching using innovative techniques will prepare the next generation of health care providers. Research focusing on areas that can be easily translated into practice will anchor the strong academic mission of the Institute.

2. Nominative list of academic staff, their academic rank

The following full-time members of the Division are all active:

- Abualsaud, Ali Omar, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Afilalo, Dr. Jonathan, Assistant Professor, Faculty of Medicine, McGill University (GFT-U)
- Chen-Tournoux, Dr. Annabel, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Eisenberg, Dr. Mark, Professor, Faculty of Medicine, McGill University (GFT-U)
- Husa, Dr. Regina, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Joyal, Dr. Dominique, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Langleben, Dr. David, Professor, Faculty of Medicine, McGill University (GFT-H)
- Mardigyan, Dr. Vartan, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Michel, Dr. Caroline, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Rudski, Dr. Lawrence, Professor, Faculty of Medicine, McGill University (GFT-H)
Chief, Division of Cardiology
- Schlesinger, Dr. Robert D, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Sebag, Dr. Igal, Associate Professor, Faculty of Medicine, McGill University (GFT-H)
- Sheppard, Dr. Richard, Assistant Professor, Faculty of Medicine, McGill University (GFT-H)
- Therrien, Dr. Judith, Associate Professor, Faculty of Medicine, McGill University (GFT-H)
- Walling, Dr. Ann, Associate Professor, Faculty of Medicine, McGill University (GFT-H)

SECTION II - GRANTS, PUBLICATIONS AND SERVICE OUTSIDE OF MCGILL

1. Grants and awards received

AFILALO, Jonathan

Fonds de la recherche en santé du Québec (FRSQ)

Mesure de la fragilité pour identifier les patients âgés à haut risque de complications après un remplacement valvulaire aortique chirurgical ou percutané

Instituts de recherche en santé du Canada (IRSC)

Measuring frailty in vascular patients undergoing surgical or endovascular procedures: A tailored approach to overcome existing barriers

Instituts de recherche en santé du Canada (IRSC)
Measurement of frailty to identify high-risk elderly patients referred for surgical and transcatheter aortic valve replacement

Sir Mortimer B. Davis - Hôpital Général Juif
Frailty Research Program

Fondation des maladies du coeur du Canada (FMCC)
Optimal revascularization strategy in patients undergoing aortic valve replacement

Réseaux de centres d'excellence du Canada (RCE)
The essential frailty toolset

CHEN-TOURNOUX, A

Department of Medicine, JGH
Echocardiographic quantification of epicardial fat and its implications for cardiovascular risk

EISENBERG, Mark

Regroupement de compagnies, fondations et particuliers (Canada)
AHA Highlights Event Nov 12, 2015 - Evidence-based advances in cardiology: Highlights from major conferences

Instituts de recherche en santé du Canada (IRSC)
Optimizing physician training in motivational communication (MC) skills for health behavior change

Regroupement de particuliers
Bright light therapy efficacy for depressive symptoms following cardiac surgery: Pilot Trial (BEAM-P)

Instituts de recherche en santé du Canada (IRSC)
Evaluating the efficacy of E-cigarette use for smoking cessation (E3) trial

Université McGill
Varenicline and adverse cardiovascular events: A systematic review and meta-analysis of randomized controlled trials

Université McGill
Stent-retrievers versus standard care for acute ischemic stroke: A systematic review and meta-analysis of randomized controlled-trials

Instituts de recherche en santé du Canada (IRSC)
A population-based analysis of the trends in treatment and management of patients with acute myocardial infarction complicated by cardiogenic shock

JOYAL, Dominique

Department of Medicine, JGH
Novel techniques in chronic total occlusions (CTO) recanalization

LANGLEBEN, David

Bayer Canada Inc.

An open-label phase IIIb study of riociguat in patients with in-operable CTEPH, or recurrent or persisting pulmonary hypertension (PH) after surgical treatment who are not satisfactory treated and cannot participate in any other CTEPH trial

Gilead Sciences

A phase 2, dose-ranging, randomized, double-blind, placebo-controlled study of GS-4997 in subjects with pulmonary arterial hypertension

Actelion Pharmaceuticals Canada Inc.

AC-065A303: Long-term single-arm open-label study, to assess the safety and tolerability of Act-293987 in patients with pulmonary arterial hypertension

Bayer Ag

Assessment of recruitment of functional pulmonary microvascular surface area in the determination of exercise limitation in patients with pulmonary arterial hypertension

Institut de Cardiologie de Montréal (ICM)

Phase-II study of the use of PulmoBind for molecular imaging of pulmonary hypertension

Department of Medicine, JGH

Assessment of recruitment of functional pulmonary microvascular surface area in the determination of exercise limitation in patients with pulmonary arterial hypertension

MICHEL, Caroline

Novartis Pharma Canada Inc.

A multicenter, randomized, double-blind, parallel group, active-controlled study to evaluate the efficacy and safety of LCZ696 compared to valsartan, on morbidity and mortality in heart failure patients (NYHA Class II-IV) with preserved ejection fraction

Bayer Canada Inc.

A randomized, double-blind, placebo-controlled, parallel-group, multi-center study to evaluate the hemodynamic effects of riociguat (BAY 63-2521) as well as study & kinetics in patients with pulmonary hypertension associated with left ventricular

Aventis Pharma

Heart failure clinic equipment donation

RUDSKI, Lawrence

Canadian Heart Research Center

Acute coronary syndromes quality enhancement research initiative III ACS III QuERI

Department of Medicine, JGH
Echocardiography-based research on the right heart

SEBAG, Igal

Department of Medicine, JGH
Matrix-array imaging for real-time, three-dimensional echocardiography and evolving techniques in cardiac mechanics

SHEPPARD, Richard

Novartis Pharma Canada Inc.
A multicenter, randomized, double-blind, parallel-group, active-controlled study to evaluate the efficacy and safety of LCZ696 compared to enalapril on morbidity and mortality in patients with chronic heart failure and reduced ejection fraction

Bayer Canada Inc.
A randomized, double-blind, double-dummy, multi-center study to assess safety and efficacy of BAY-94-8862 in subjects with emergency presentation at the hospital because of worsening chronic heart failure with left ventricular systolic dysfunction and

Janssen Pharmaceutica Inc
A randomized, double-blind, event-driven, multicenter study comparing the efficacy and safety of oral Rivaroxaban with placebo for reducing the risk of death, myocardial infarction or stroke in subjects with chronic heart failure and significant coronary

Novartis Pharma Canada Inc.
A multicenter study to evaluate safety and tolerability in patients with chronic heart failure and reduced ejection fraction from PARADIGM-HF receiving open label LCZ696

Amgen Canada Inc (Mississauga, ON)
A double-blind, randomized, placebo-controlled, multicenter, dose escalation study to select and evaluate an oral modified release formulation of omecamtiv mecarbil in subjects with heart failure and left ventricular systolic dysfunction

Biomerieux
Primary investigator for investigator driven study

THERRIEN, Judith

Department of Medicine, JGH
Beta Blockers and Angiotensin Receptor Blockers in Bicuspid Aortic Valve Disease Aortopathy

Hamilton Health Sciences
BAV - Beta-blockers and angiotensin receptor blockers in bicuspid aortic valve aortopathy

TOTAL \$812,635

2. Scholarly works published in the 2016 calendar year:

--**Abualsaud AO**, Lowe BS, Guo K, Marelli AJ, Kaouache M, Guo L, Jutras L, Martucci G, Therrien J, “Cardiac output as a predictor in congenital heart disease: Are we stating the obvious?” *Int J Cardiol.* 2016 Feb 8; 210:143-148. PubMed PMID: 26945436

--**Abualsaud A**, Freixa X, Tzikas A, Chan J, Garceau P, Basmadjian A, Ibrahim R. “Side-by-Side Comparison of LAA Occlusion Performance with the Amplatzer Cardiac Plug and Amplatzer Amulet”. *J Invasive Cardiol.* 2016 Jan; 28(1); 34-8. PubMed PMID: 26716593

--Drudi LM, Phung K, Ades M, Zuckerman J, Mullie L, Steinmetz OK, Obrand DI, **Afilalo J**. Psoas Muscle Area Predicts All-Cause Mortality After Endovascular and Open Aortic Aneurysm Repair. *Eur J Vasc Endovasc Surg.* 2016 Dec;52(6):764-769

--Hummel SL, Alpert CM, Galatas C, **Afilalo J**. Training Geriatric Cardiologists for an Aging Population: Time to Get Going. *Am J Med.* 2016 Nov 25. Epub ahead of print

--Zuckerman J, Ades M, Mullie L, Trnkus A, Morin JF, Langlois Y, Ma F, Levental M, Morais JA, **Afilalo J**. Psoas Muscle Area and Length of Stay in Older Adults Undergoing Cardiac Surgery. *Ann Thorac Surg.* 2016 Nov 15; 223:736-743

--Ferrara F, **Rudski LG**, Vriza O, Gargani L, **Afilalo J**, D'Andrea A, D'Alto M, Marra AM, Aciri E, Stanziola AA, Ghio S, Cittadini A, Naeije R, Bossone E. Physiologic correlates of tricuspid annular plane systolic excursion in 1168 healthy subjects. *Int J Cardiol.* 2016 Aug 18; 223:736-743

--Arnold SV, **Afilalo J**, Spertus JA, Tang Y, Baron SJ, Jones PG, Reardon MJ, Yakubov SJ, Adams DH, Cohen DJ; U.S. CoreValve Investigators. Prediction of Poor Outcome after Transcatheter Aortic Valve Replacement. *J Am Coll Cardiol.* 2016 Oct 25; 68(17):1868-1877

--**Afilalo J**. Conceptual Models of Frailty: The Sarcopenia Phenotype. *Can J Cardiol.* 2016 Sep; 32(9):1051-5

--Hermiller JB Jr, Yakubov SJ, Reardon MJ, Deeb GM, Adams DH, **Afilalo J**, Huang J, Popma JJ; CoreValve United States Clinical Investigators. Predicting Early and Late Mortality after Transcatheter Aortic Valve Replacement. *J Am Coll Cardiol.* 2016 Jul 26; 68(4):343-52

--**Afilalo J**, Steele R, Manning WJ, Khabbaz KR, Rudski LG, Langlois Y, Morin JF, Picard MH. Derivation and Validation of Prognosis-Based Age Cutoffs to Define Elderly in Cardiac Surgery. *Circ Cardiovasc Qual Outcomes.* 2016 Jul; 9(4):424-31

--**Afilalo J**, Kim S, O'Brien S, Brennan JM, Edwards FH, Mack MJ, McClurken JB, Cleveland JC Jr, Smith PK, Shahian DM, Alexander KP. Gait Speed and Operative Mortality in Older Adults Following Cardiac Surgery. *JAMA Cardiol.* 2016 Jun 1; 1(3):314-21

--Bibas L, Levi M, Touchette J, **Mardigyan V**, Bernier M, Essebag V, **Afilalo J**. Implications of Frailty in Elderly Patients With Electrophysiological Conditions. *JACC EP*. 2016; 2(3):288-294. Epub

--**Afilalo J**. The Road the Frailty Is Paved With Good Intentions. *Circ Cardiovasc Qual Outcomes*, 2016 May; 9(3):194-6

--Alfredsson J, Stebbins A, Brennan JM, Matsouaka R, **Afilalo J**, Peterson ED, Vemulapalli S, Rumsfeld JS, Shahian D, Mack MJ, Alexander KP. Gait Speed Predicts 30-Day Mortality Following Transcatheter Aortic Valve Replacement: Results From the Society of Thoracic Surgeons/American College of Cardiology Transcatheter Valve Therapy Registry. *Circulation*, 2016 Apr 5; 133(14):1351-9

--Senaratne JM, Norris CM, Graham MM, Galbraith D, Nagendran J, Freed DH, **Afilalo J**, Van Diepen S; APPROACH Investigators. Clinical and angiographic outcomes associated with surgical revascularization of angiographically borderline 50-69% coronary artery stenoses. *Eur J Cardiothorac Surg*. 2016 May; 49(5):e112-8

--Mamane S, Mullie L, Piazza N, Martucci G, Morais J, Vigano A, Levental M, Nelson K, Lange R, **Afilalo J**. Psoas Muscle Area and All-Cause Mortality After Transcatheter Aortic Valve Replacement: The Montreal-Munich Study. *Can J Cardiol*. 2016 Feb; 32(2):177-82. Epub 2015 Dec 9

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--Beauséjour Ladouceur V, Lawler PR, Gurvitz M, Pilote L, **Eisenberg MJ**, Ionescu-Ittu R, Guo L, Marelli AJ. Exposure to Low-Dose Ionizing Radiation from Cardiac Procedures in Patients with Congenital Heart Disease: 15-Year Data From a Population-Based Longitudinal Cohort. *Circulation* 2016; 133:12-20

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- McDonald EG, Dayan N, Pelletier R, **Eisenberg MJ**, Pilote L. Premature cardiovascular disease following a history of hypertensive disorder of pregnancy. *Int J Cardiol* 2016; 219:9-13
- *Mottillo S, Boyle P, Jacobi Cadete LD, Rouleau J-L, **Eisenberg MJ**. A National Survey of Mentoring Practices for Young Investigators in Circulatory and Respiratory Health. *Can Respir J* 2016; 2016:5260134
- Pelletier R, Choi J, Winters N, **Eisenberg MJ**, Bacon SL, Cox J, Daskalopoulou SSM Lavoie KL, Karp I, Shimony A, So D, Thanassoulis G, Pilot L; GENESIS-PRAXY Investigators. Sex Differences in Clinical Outcomes after Premature Acute Coronary Syndrome. *Can J Cardiol* 2016; 32:1447-1453
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3. Academic and community engagement service outside of McGill by individual members of the unit:

See above under Community Involvement

Members of the Division continue to serve in committees, editorial boards and to participate in other high level academic activities at national and international levels. Dr. Rudski serves as the Assumed the Presidency of the Canadian Society of Echocardiography and serves on the Board of

Governors of the American College of Cardiology. He participates as well on several national and international imaging committees and writing groups. Dr. Sebag serves on the Board of Directors of the Canadian Society of Echocardiography as well as on ASE writing groups and committees. Dr. Langleben participated in guidelines development for international societies in pulmonary hypertension. Members have succeeded in the competing renewal of their grants as well as in obtaining additional support from peer-reviewed granting agencies. Dr. Afilalo's groundbreaking research on Frailty assessment has been incorporated into the Society of Thoracic Surgeons' risk assessment score – the international standard.

Submitted by:

Lawrence Rudski, MD
Director, Division of Cardiology