

Annual Report
Division of Cardiology
Department of Medicine - Jewish General Hospital
January 1 - December 31, 2014

SUMMARY

Introduction

The year 2014 saw consolidation and growth in core clinical and research programs, coupled with innovation in our core teaching, clinical and research missions.

Clinical Services

Overview of clinical initiatives at the JGH: Dr Jonathan Afilalo has pioneered a clinical and research Frailty Clinic to help evaluate and stratify patient pre-cardiac surgery. Our Center for Pulmonary Vascular Disease remained the unique ultraspecialized center in the greater Montreal area with paradigm-shifting clinical therapies introduced by Dr David Langleben and colleagues. Dr Vartan Mardigyan has built a pericardial service receiving referrals from many other sites in Montreal. He has also developed a novel method of pacemaker implantation, resulting in a 0.25% complication rate. Dr Caroline Michel is pioneering a Cardiology Palliative Care service that gives end-stage cardiac patients a dignified choice when treatment options have been exhausted. The JGH Division of Cardiology has launched an Integrated Practice Unit in Cardiovascular Sciences, gy and Cardiac Surgery in a Patient-centered approach, under the Directorship of Dr Lawrence Rudski.

Cardio-Oncology: The Jewish General Hospital's Cardio-Oncology Program has continued to grow. In addition to division members seeing patients in the oncology department with chemotherapy-related cardiovascular issues we have initiated a joint clinical research program with a Fellow dedicated to this track.

Pacemaker: 100% of the pacemakers are now being done in the cardiac catheterization laboratory. Nearly all of the venous access for pacemakers is done with ultrasound guidance. This has resulted in significant improvement in time to access & markedly reduced access related complications.

Pericardial Disease: In 2014, first line treatment for patients requiring pericardial drainage has been a pigtail catheter with extended drainage inserted percutaneously. This is done in the CCU. We have demonstrated a low complication rate, low recurrence rate and less invasive therapies for the patients. A pericardial service to perform both acute interventions and post-discharge follow-up has been established by Dr. Vartan Mardigyan of our division, and Dr. Jed Lipes of the Department of Critical Care, with assistance from our imaging lab.

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.

Percutaneous Coronary Intervention – CTO Program: 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. We have formed a partnership with the CHUM (Dr. Joyal of JGH and Dr. Mansour of CHUM) to increase our shared experience and patient pool to improve clinical outcomes and to collaborate in a research program.

Three-Dimensional 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:

JGH Research Highlights

Dr David Langleben produced unique insights into the pathophysiology of the pulmonary circulation through the study of capillary recruitment in the catheterization laboratory. These findings will greatly add to our understanding of pulmonary hypertension patients will enormous implications towards earlier detection and ultimately therapeutic intervention. Dr Jonathan Afilalo continued his research in Frailty successfully completing the enrolment of 1000 patients into his CIHR-sponsored Frailty-Aortic Valve Replacement study and continued basic/translational research in frailty. Dr Mark Eisenberg continued building upon his successes in strategies for smoking cessation in patients with coronary artery disease. The Echocardiography Laboratory studied a variety of novel echocardiographic signs in cardiomyopathies, cancer chemotherapy patients, pulmonary hypertension and pulmonary embolism funded both internally and through peer-review funded grants.

During the period April 2013 to March 2014, the total amount of research funding in the Division of Cardiology recorded at the Lady Davis Institute for Research amounted to approximately \$855,152.

2. Teaching and learning (undergraduate and graduate):

Teaching at the JGH continues to be a strong point under the leadership of Dr. Regina Husa, co-Program Director for the McGill Adult Cardiology Training Program. We continue leading the McGill Echocardiography rounds, which are now disseminated to sites outside of the McGill RUIS, and host the annual JGH-McGill Imaging Symposium. This symposium had more than 200 registrants from across Quebec and beyond, highlighting the presentation and imaging skills of JGH and MUHC staff, as well as invited speakers from Quebec, Ontario, and Europe. All division members participated and excelled in teaching activities at all levels.

Major achievements in pedagogy

Dr Regina Husa has accepted the position of Director of Accreditation for the McGill University Postgraduate Medicine Program.

Dr Mark Eisenberg has been appointed the Director of the MD PhD Program at McGill University

The 5th Annual JGH-McGill Cardiovascular Imaging Symposium, under the leaderships of Drs

Igal Sebag and Lawrence Rudski attracted 150 attendees to the 5th Annual Symposium in Cardiovascular Imaging that included national and international leaders in the field of basic and advanced imaging as applied to clinical practice.

Annabel Chen-Tournoux, MD

Undergraduate:

-EKG II, EKG III, and Cardiovascular physical exam: 5 hours

Postgraduate:

-CCU/2NE 4 weeks, 4 fellows

-Consult service: 10 fellows

-Echo lab: 4 echo fellows

Other

-JGH Cardiology Division Journal Club: 1 hour

-McGill/JGH Echo Symposium

-American Society of Echocardiography Scientific Sessions

-JGH Dept of Family Medicine Grand Rounds

-Post AHA Evening Conference sponsored by Bayer Healthcare

Mark J. Eisenberg, MD MPH FACC FAHA

-Undergraduate: -Evidenced-Based Medicine Small Groups (8 hrs)

-Postgraduate: Electrocardiogram Interpretation for Cardiology Residents (3 hrs)

-Clinical Teaching

Cardiac Catheterization Laboratories (>160 hrs/year) – Cardiology Fellows

-Treadmill/nuclears: Train general internal medicine fellows, (>140 hrs/year)

Consultations (>120 hrs/year) – Cardiology Fellows, Residents, Medical Students

Supervision:

-Research Supervision of Cardiology Fellows, Medical Residents, Postdoctoral fellows, Graduate Students, Thesis Internal Examiner, and Medical Students

Other

-Chair of Program Advisory Committee of the Young Investigators Forum for the Institute of Cardiovascular and Respiratory Health of the CIHR

Regina Husa, MD

-Undergraduate: Chief tutor, Cardiac Physiology Small Groups, 10 hours and design/prep (med students), ECG course for students, Simulation Centre teaching procedural skills

-Medical Education Elective (research)

- Supervised 3 electives
- Academic Half Day teaching and curriculum design in Cardiology & Internal Medicine
- PGY4 Introduction to Cardiac Procedures Course ½ day simulation
- Clinical supervision:
 - 6-7 weeks CCU/year
 - Consult service 1 day/2 weeks
 - 1-2 outpatient clinics/week
 - 0.5-1 days echo
 - RGP, 1 month
 - Royal College Surveyor (National) evaluating residency programs.

Joyal, Dominique, MD

Undergraduate: Teaching medical students on consult service
 Postgraduate: Teaching residents on consult service and cath lab

Langleben, David

Undergraduate: 4-6 hours, Evaluation of Chest pain and ECG basics
 Graduate (residents and fellows) 8 or more hours per year
 Postgraduate: Teaching to residents on PH 12 hours per year
 -Teaching on wards and CCU 6 weeks/year
 -Teaching in Pulmonary Hypertension clinic: 20 hours/year (Fellows)
 -Clinical Supervision: Consults 2-3 weeks/year; OPD clinic 4-4.5 half days per week
 Supervision: PhD student in lab

Vartan Mardigyan, MD

-Undergraduate: 1 hr of small group talks on ECG interpretation with medical students.
 -Postgraduate: 2 hrs of didactic teaching to cardiology fellows during a dedicated pacemaker half-day with hands on teaching of the pacemaker interrogation process; 3 hrs of didactic teaching to internal medicine and cardiology fellows on other subjects (ACS, ECGs, Constrictive Pericarditis).
 - 4 weeks of CCU
 - Total of 2 weeks of Cardiology Consult Service
 - Supervision and teaching of pericardiocentesis and pericardial drain placement (15 to 20 cases with Cardiology and Echocardiography fellows).
 Other:
 - 5 hours of teaching to Family Doctors on the management of Atrial Fibrillation
 - 3 hours of talks to the Cardiology group at the JGH (includes 1 hrs of Journal Club)

Lawrence Rudski, MD

Undergraduate: 4.5 - senior physician rounds;
 Postgraduate: 6 hours - cardiology and echo rounds
 Supervision:
 -4.5 weeks CCU, approx. 4 weeks consults, 4 half-days per week echocardiography teaching of PGY 4-7 residents
 - Supervision of Dr. Nimrod Blank, a post-doctoral fellow and cardiologist from Israel
 Other:

- JGH-McGill 5th Annual Cardiovascular Imaging Symposium – Co-Director
- Royal College of Physicians and Surgeons of Canada, member in the AFC Adult Echocardiography working group tasked to design and write a curriculum leading to a "Diplomate in Echocardiography"
- Participant in course of leadership training, American College of Cardiology – Board of Governors
- Provided expert echocardiography interpretation for MUHC - Lachine Campus
- Led the introduction of the JGH Cardiology Division into the HOPS program. This program, run by the English Montreal School Board, allows exceptional secondary 5 high school students to spend a half day per week rotating through different hospital departments.

Caroline Michel, MD

- Undergraduate: 20 hours, Osler fellow; 5 hours, cardio lectures in hospital
- Postgraduate: Cardio fellow ½ day 1 hrs; lectures for academic half day in Internal and Family Medicine and Simulation Centre 50=6- hours
- Clinical Supervision: Consults 160 hours, CCU, 320 hours, Echo Lab 500 hours; Heart Failure Clinic 20 hours

Igal Sebag, MD

- Undergraduate: 2 hours
- Postgraduate: 14 hours
- Advanced Training in Echocardiography (Fellowship and Teaching Director in Echocardiography)
- McGill-trained (Cardiology, Internal Medicine or Intensive Care Unit trained) 4 Echocardiography Fellows; 2 National/International Echocardiography Fellows
- Clinical Teaching
- Echocardiography Laboratory (100 hours/year) - Echocardiography Fellows and Core Cardiology Fellows
- Coronary Care Unit and Consultation Service (>75 hours/year) - Medical students, Residents and Cardiology Fellows
- McGill Representative on the Scientific Program Committee of the Quebec Cardiologists' Association (3 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 (400 attendees from across the country)
- Fourth Annual McGill / Jewish General Hospital Echocardiography Scientific Symposium (in partnership with the McGill Faculty for Continuing Medical Education)
- Co-Director, Title: Update in Echocardiography (150 attendees from across Quebec)
- Co-Director of the McGill / Jewish General Hospital Post-Graduate Echocardiography Course.

Richard Sheppard, MD

Undergraduate:

- Osler Fellowship (includes simulation center) 4 year program, 6 two hour meetings per year
- Wards/CCU teaching medical students (4-5 weeks per year)

- Consult Service teaching medical students (5-6 weeks total per year (all day)
- Lectures on chest pain and palpitations 1-2 hours per year

Postgraduate:

- Academic Half Day for Internal Medicine Residents (3 hours)
- Clinical supervision on wards (4-5 weeks per year)
- Clinical supervision on CCU (4-5 weeks per year)
- Clinical supervision on consult service (4-5 weeks per year)
- Supervision of Cardiology Residents during Longitudinal Clinic
- Other:
 - Work on service at Lakeshore General Hospital 4 weeks per year

Judith Therrien, MD

- Undergraduate: 2 hours ECG lecture
- Postgraduate: 4 hours of lectures
- Clinical Supervision:
 - 4 weeks/year CCU
 - 4 weeks/year consult
 - 2 ½ days/week ACHD fellowship teaching
 - 1day/week echo teaching to fellows
- Other:
 - Talks at international conferences

Ann Walling, MD

- Undergraduate: 25 hours
- Postgraduate: 3 days per week in Echo Lab (400 hours); Academic half-day 2 hours
- Clinical Supervision:
 - 4-6 weeks/year on CCU and consults (daily rounds with extensive teaching) (1-2 days/month);
 - 4-5 half days/week for 35 weeks out-patient clinic
 - CCU rounds on stress test, 12 hours/year
- Other:
 - McGill cardio and echo rounds, 2 hours

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.

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.

5. Milestones:

Dr. Mohamed Nosair and Dr. Nicolo Piazza joined the Division as Associate Members.

6. Honours, awards, and prizes:

Dr Lawrence Rudski was elected to the post of Vice President-President Elect of the Canadian Society of Echocardiography, Governor-Elect of the American College of Cardiology, and the Editorial Board of the American Society of Echocardiography.

Dr Jonathan Afilalo was named Co-Director for Research for the American College of Cardiology's Geriatric Cardiology Section.

7. Fundraising: None reported

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

The JGH will use the upcoming year to develop its unique CV-IPU, the JGH Integrated Cardiovascular Practice Unit across the CIUSSS du Centre-Ouest-de-l'Île-de-Montréal, with the aim of coordinating primary, secondary and tertiary services in cardiovascular care. We will begin with fused in-patient cardiology and cardiovascular surgery units and then expand into out-patient care. Central to this program is an advanced integrated cardiovascular imaging and diagnostic services program, giving the patient the right tests in the right sequence for their particular condition. Continued pioneering research into the importance of "Frailty", as well as clinical and research programs in Cardio-Oncology will be advanced. We will begin our first projects in the newly established joint Cardiology-Emergency Medicine Research Unit. Cross appointments with other McGill clinicians and investigators will serve to further develop our programs in tertiary and quaternary cardiology such as our internationally-recognized Center for Pulmonary Vascular Diseases.

2. A nominative list of academic staff, their academic rank

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

- 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, Associate 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, J

Canadian Institutes for Health Research 2012-2016
Measurement of Frailty to Identify High-Risk Elderly Patients Referred for Surgical and Transcatheter Aortic Valve Replacement

Canadian Institutes for Health Research 2013-2014
PI, Proof-of- Principle Phase I, Buccal Lamin A as a Novel Biomarker for Frailty

Fonds de recherche Québec – Santé 2014-2016
Subvention d'établissement de jeune chercheur
Mesure de la fragilité pour identifier les patients âgés à haut risque de complications après un remplacement valvulaire aortique chirurgical ou percutané

Heart & Stroke Foundation Canada Fellowship 2012-2014
Measurement of Frailty to Identify High-Risk Elderly Patients Referred for Surgical and Transcatheter Aortic Valve Replacement

Chen-Tournoux, A

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

Eisenberg, M

2014

Eisenberg, Mark 516,053

-Eli Lilly & Co
Canadian observational antiplatelet study (COAPT) 8,660

-Pfizer Canada Inc.
GA3041Z4-Evaluation of Varenicline-(Champix™) in smoking cessation for patients post-acute coronary syndrome (EVITA) trial 150,000

-CIHR – Studentship

A population-based analysis of the trends in treatment and management of patients with acute myocardial infarction complicated by cardiogenic shock. 35,000

-CIHR – Studentship

Apixaban & the risk of bleeding: a meta-analysis of randomized controlled trials. 2,834

-McGill University – Studentship

Pharmacological options for stroke prevention among patients undergoing trans-aortic valve implantation (TAVI). 3,125

-McGill University – Studentship

The safety and efficacy of ABSORB bioresorbable vascular scaffold: A systematic review. 1,000

-CIHR

Optimizing physician training in motivational communication (MC) skills for health behavior change 2,891

-CIHR

Population Level Evaluation of Ablation Therapies in Atrial Fibrillation 9,476

-CIHR

The efficacy and safety of smoking cessation interventions in patients with cardiovascular disease: A meta-analysis of randomized controlled trials. 49,980

-CIHR

The clinical, regulatory, and ethical implications of electronic cigarettes: A knowledge synthesis grant. 91,484

-CIHR

Evaluating the efficacy of E-cigarette use for smoking cessation (E3) trial. 161,604

-Co-Investigator, CIHR Open operating grant. Cardiac troponins and sex differences in outcomes. \$58,187/year; my part: \$0/year. Principal Investigator: Karin Humphries, 2013-2015

-Co-Investigator, CIHR, Open operating grant. Drospirenone-containing combined oral contraceptives and the risk of arterial thrombosis. \$77,265/year; my part: \$0/year. Principal Investigator: Kristian Filion, Oct. 2012 - Sept. 2014

-Principal Investigator, LDI Clinical Research Pilot Project (CLiPP) Funding Initiative. Administration of fixed dose versus weight-based dose of heparin in patients with ST-segment elevation myocardial infarction prior to primary percutaneous coronary intervention. \$12,268/year, Sept. 2012 - Aug. 2014.

-Co-Investigator, FRQS, Recherches en sante des populations. Le cancer et les procédures

médicales causant l'ionisation dans les patients atteints de cardiopathies congénitales.
\$79,419/year; my part: \$0/year. Principal Investigator: Ariane Marelli, May 2012-April 2015.

-Co-Investigator, CIHR, Open operating grant. Cancer and procedure-related ionization in congenital heart disease patients. \$70,218/year; my part: \$0/year. Co- Principal Applicants: Ariane Marelli, Louise Pilate, Apr. 2012 - Mar. 2014

-Co-Investigator, Heart and Stroke Foundation of Canada (HSFC) Grant-in-aid. GENESIS PRAXY (GENdEr and Sex determinantS of cardiovascular disease: from bench to beyond PRemature Acute Coronary SYndrome). \$176,174/year; my part: 0\$/year. Principal Investigators: Louise Pilote, Igor Karp, Apr. 2011 - Mar. 2014

Joyal, D

Treatment of complex coronary lesions
Department of Medicine, JGH

Langleben, D

Actelion Pharmaceuticals Canada Inc.
Ac-066A301/Epitome-2: a Multicenter, Single-Arm, Open-Label, Phase 3B Study to Assess the Effects of Switching from Flolan to Act-385781A in Patients with Pulmonary Arterial Hypertension (PAH) Ac-066A302/Epitome-2 Extension: An Open-Label Extension of St

Bayer AG
Assessment of Recruitment of Functional Pulmonary Microvascular Surface Area in the Determination of Exercise Limitation in Patients with PAH

Bayer Inc. Health Care Division

Glaxosmithkline Inc. Canada
AMB110094: a Post Marketing Observational Surveillance Programme for AM Brisentan (Volt)

Northern Therapeutics Inc
The Phacet Trial, Pulmonary Hypertension Assessment of Cell Therapy

-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 8,000

Michel, C

Bayer Inc. Health Care Division
Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, Multi-Center Study to Evaluate the Hemodynamic Effects of Riociguat (Bay 63-2521) as Well as Safety and Kinetics in Patients with Pulmonary Hypertension Associated with Left Ventricular Systoli

National Institutes of Health (USA) NIH
Xanthine Oxidase Inhibition for Hyperuricemic Heart Failure Patients

Rudski, L

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

Genzyme – Investigator – Initiated study. Screening for Anderson-Fabry Disease in Multiple high Risk Groups \$120,000.00

CIHR

ELOPE Study – Outcomes post-pulmonary embolism – Dr. S. Kahn – PI
Role: Echocardiography Core Lab

BioMerieux – \$50,000

Galactica Study- GALectin And CardioToxicity In CANcer.
Co-Investigator – Echocardiography

Sebag, I

Massachusetts General Hospital
Susan G Komen Breast Cancer - Early Detection and Prediction of Chemotherapy-Induced Cardiotoxicity in Breast Cancer Patients (Project)

Department of Medicine, JGH
Assessment of reparability of mitral valve prolapse using real-time, trans-thoracic, three-dimensional echocardiography

BioMerieux – \$50,000

Galactica Study- GALectin And CardioToxicity In CANcer.
Co-Investigator – Echocardiography

Sheppard, R

National Institutes of Health (USA) NIH
Immune Activation and Myocardial Recovery in Peripartum Cardiomyopathy

New England Research Institutes (NERI) (USA)
Treatment Of preserved cardiac function heart failure with an Aldosterone anTagonist (N01-HC-45207TOPCAT)

Bayer

ART-S-HF study of novel mineralocorticoid receptor in heart failure patients with renal dysfunction

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

Novartis Pharma Canada Inc.

CSPP100A2368 - a Multicenter, Randomized, Double-Blind, Parallel-Group, Placebo-Controlled Study to Evaluate the 6 Months Efficacy and Safety of Aliskiren Therapy on Top of Standard Therapy, on Morbidity and Mortality When Initiated Early

BioMerieux – \$50,000

Galactica Study- GALectin And CardioToxicity In CANcer.
Principal Investigator

Therrien, J

Population Health Research Institute

BAV (Beta-Blockers and Angiotensin Receptor Blockers in Bicuspid Aortic Valve Aortopathy

Department of Medicine, JGH

Beta Blockers and Angiotensin Receptor Blockers in Bicuspid Aortic Valve Disease Aortopathy

2. Scholarly works published in the 2014 calendar year:

Rudski L

--Rudski LG, Bossone E, Langleben D. From the echo bed to the pulmonary vascular bed: dobutamine testing in the noninvasive laboratory. *Chest*. 2014 Oct;146(4):876-8.

--Bossone E, Rudski LG, Grünig E. Searching for markers of the right heart-pulmonary circulation unit function: a continuing challenge. *Eur Heart J Cardiovasc Imaging*. 2014 Dec;15(12):1420-1. doi: 10.1093/ehjci/jeu151. Epub 2014 Sep 8.

--Kahn SR, Houweling AH, Granton J, Rudski L, Dennie C, Hirsch A. Long-term outcomes after pulmonary embolism: current knowledge and future research. *Blood Coagul Fibrinolysis*. 2014 Jul;25(5):407-15.

Sheppard RJ

--Sheppard R, Rajagopalan N, Safirstein J, Briller J. An update on treatments and outcomes in peripartum cardiomyopathy. *Future Cardiol*. 2014 May;10(3):435-47.

Therrien J

--Broberg CS, Therrien J. Understanding and treating aortopathy in bicuspid aortic valve. *Trends*

Cardiovasc Med. 2014 Dec 17. pii: S1050-1738(14)00242-4.

--Wald RM, Altaha MA, Alvarez N, Caldarone CA, Cavallé-Garrido T, Dallaire F, Drolet C, Grewal J, Hancock Friesen CL, Human DG, Hickey E, Kayedpour C, Khairy P, Kovacs AH, Lebovic G, McCrindle BW, Nadeem SN, Patton DJ, Redington AN, Silversides CK, Tham EB, Therrien J, Warren AE, Wintersperger BJ, VonderMuhll IF, Farkouh ME. Rationale and design of the Canadian Outcomes Registry Late After Tetralogy of Fallot Repair: the CORRELATE study. *Can J Cardiol.* 2014 Nov;30(11):1436-43.

--Boodhwani M, Andelfinger G, Leipsic J, Lindsay T, McMurtry MS, Therrien J, Siu SC; Canadian Cardiovascular Society. Canadian Cardiovascular Society position statement on the management of thoracic aortic disease. *Can J Cardiol.* 2014 Jun;30(6):577-89.

--Mylotte D, Pilote L, Ionescu-Ittu R, Abrahamowicz M, Khairy P, Therrien J, Mackie AS, Marelli A. Specialized adult congenital heart disease care: the impact of policy on mortality. *Circulation.* 2014 May 6;129(18):1804-12.

--Mylotte D, Quenneville SP, Kotowycz MA, Xie X, Brophy JM, Ionescu-Ittu R, Martucci G, Pilote L, Therrien J, Marelli AJ. Long-term cost-effectiveness of transcatheter versus surgical closure of secundum atrial septal defect in adults. *Int J Cardiol.* 2014 Mar 1;172(1):109-14.

Eisenberg MJ

--de Champlain F, Boothroyd LJ, Vadeboncoeur A, Huynh T, Nguyen V, Eisenberg MJ, Joseph L, Boivin JF, Segal E. Computerized interpretation of the prehospital electrocardiogram: predictive value for ST-segment elevation myocardial infarction and impact on on-scene time. *CJEM* 2014; 16:94-105.

--*Bloom B, Filion KB, Atallah R, Eisenberg MJ. Meta-Analysis of Randomized Controlled Trials on the Risk of Bleeding with Dabigatran. *Am J Cardiol* 2014; 113:1066-1074.

--Shimony A, *Grandi SM, Pilote L, Joseph L, O'Loughlin J, Paradis G, Rinfret S, Sarrafzadegan N, Adamjee N, Yadav R, Gamra H, Diodati JG, Eisenberg MJ. Utilization of evidence-based therapy for acute coronary syndrome in high income and low/middle income countries. *Am J Cardiol* 2014; 113:793-7.

--*Banon D, Filion KB, *Budlovsky T, Franck C Eisenberg MJ. The Usefulness of Ranolazine for the Treatment of Refractory Chronic Stable Angina Pectoris as Determined from Review of Randomized Controlled Trials. *Am J Cardiol* 2014; 113:1075-82.

--Shah M, Tsadok MA, Jackevicius CA, Essebag V, Eisenberg MJ, Rahme E, Humphries KH, Tu JV, Behloul H, Guo H, Pilote L. Warfarin Use and the Risk for Stroke and Bleeding in Patients with Atrial Fibrillation Undergoing Dialysis. *Circulation* 2014;129:1196-1203.

--*Grandi SM, Filion KB, Gervais A, Joseph L, O'Loughlin J, Paradis G, Rinfret S, Pilote L, Grondin FR, Lutchmedial S, Eisenberg MJ. Weight change in patients attempting to quit smoking

post-myocardial infarction. *Am J Med* 2014; 127:641-9.

--*Franck C, *Budlovsky T, *Windle SB, Filion KB, Eisenberg MJ. Electronic Cigarettes in North America: History, Use, and Implications for Smoking Cessation. *Circulation* 2014; 129:1945-52.

--*Al Ali J, Franck C, Filion KB, Eisenberg MJ. Coronary Artery Bypass Graft Surgery versus Percutaneous Coronary Intervention with First-Generation Drug-Eluting Stents: A Meta-Analysis of Randomized Controlled Trials. *JACC Cardiovasc Interv* 2014; 7:497-506.

--*Atallah R, Filion KB, *Wakil S, *Grandi SM, Joseph L, Genest J, Pilote L, Poirier P, Rinfret S, Schiffrin E, Eisenberg MJ. The Long-Term Effects of Popular Diets on Weight Loss and Cardiovascular Risk Factors: A Systematic Review of Randomized Controlled Trials. *Circ Cardiovasc Qual Outcomes* 2014; 7:815-827.

--Zhang DDQ, Eisenberg MJ, Grandi SM, Joseph L, O'Loughlin J, Paradis G, Pilote L, Rashid MN, Lozano P, Filion KB. Bupropion, smoking cessation, and health-related quality of life following an acute myocardial infarction. *J Popul Ther Clin Pharmacol* 2014; 21:e346-56.

--Breault M-E, Bergman H, Boivin J-F, Morin J-F, Langlois Y, Eisenberg MJ, Ohayon S, Kwan R, Autexier C, Afilalo J. Telomere Length and the Clinical Phenotype of Frailty in Older Adults Undergoing Cardiac Surgery. *J Am Geriatr Soc* 2014; 62:2205-7.

--Franck C, Dourian T, Grandi SM, Eisenberg MJ, Filion KB. Very late stent thrombosis in patients with first-generation drug-eluting stents: a systematic review of reported cases. *Int J Cardiol* 2014; 177:1056-8.

--*Touma L, Filion KB, Atallah R, Eberg M, Eisenberg MJ. A Meta-Analysis of Randomized Controlled Trials for the Risk of Bleeding of Apixaban versus Vitamin K Antagonists. *Am J Cardiol* 2014; doi: 10. 1016/j. amjcard. 2014. 11. 039. [Epub]

Langleben D

--Langleben D. Pulmonary capillary hemangiomas: the puzzle takes shape. *CHEST* 2014;145:197-199.

--Sitbon O, Delcroix M, Bergot E, Boonstra AB, Granton J, Langleben D, Subías PE, Galiè N, Pfister T, Lemarié JC, Simonneau G. EPITOME-2: An open-label study assessing the transition to a new formulation of intravenous epoprostenol in patients with pulmonary arterial hypertension. *Am Heart J* 2014;167:210-7.

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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 Vice President of the Canadian Society of Echocardiography and on the Board of Directors of the American Society of Echocardiography. He also 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.

Submitted by:

Lawrence Rudski, MD
Director, Division of Cardiology