

Annual Report
Division of Cardiology
Department of Medicine - Jewish General Hospital
January 1 - December 31, 2012

SUMMARY

The past year had been one of change and growth. The JGH Division of Cardiology underwent a change in leadership, transitioning from a period of great growth, under Dr. David Langleben. A new Interim Director, Dr. Lawrence Rudski was named. Two new members were recruited, leading to new opportunities in the clinical and research arenas. A new Pulmonary Hypertension Invasive Research Laboratory was inaugurated, and we continued our planning towards our transition to our new cardiology unit in Pavilion K.

Introduction

Clinical Services

Highlight **new** innovative and outstanding accomplishments, challenges and important developments which occurred in 2012. Ongoing clinical activities are not to be reported on, for example long-established clinics and services.

Cardio-Oncology: The Jewish general Hospital has established a link between cardiology and oncology in the clinic setting. Division members have begun seeing patients in the oncology department with cardiovascular-related issues in the context of their cancers. These referrals are from oncologists and hematologists with the goal of providing comprehensive multidisciplinary care for the growing sub specialty of cardio-oncology.

Pacemaker: 80% of the pacemakers are now being done in the cardiac catheterization laboratory. Since September 2012, the majority of the venous access for pacemakers is done with ultrasound guidance. This has resulted in significant improvement in time to access & reduced access related complications.

Pericardial Disease: In 2012, 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..

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. In addition, in 2012, we started a hybrid coronary revascularization program in partnership with the Cardiac Surgery Division. This combines minimally invasive surgery with coronary stenting, to avoid the use of vein grafts.

Three-Dimensional Trans-esophageal Echocardiography at the JGH: Recently acquired matrix-array imaging for real-time, 3-dimensional trans-esophageal echocardiography has enabled us to view cardiac structures with new perspectives providing clinicians with more accurate diagnoses and improved quantification. More particularly, the en face view of the mitral valve allows for a more accurate diagnosis of mitral valve disease, and thus, helps guide the cardiac surgeon for mitral valve repair. An enhanced characterization of an atrial septal defect has consolidated our role as a McGill Cardiovascular Imaging referring site for trans-catheter device closure (performed at the MUHC-Royal Victoria).

1. Research and publications:

The most significant operating grant was secured by Dr. Jonathan Afilalo from the Canadian Institutes for Health Research (CIHR) amounting to \$360,220 for the period 2012-2016 for his research on measurement of frailty to identify high-risk elderly patients referred for surgical and transcatheter aortic valve replacement. He is also received career awards from the FRSQ and the Heart and Stroke Foundation of Canada.

During the period April 2012 to March 2013, the total amount of research funding in the Division of Cardiology recorded at the Lady Davis Institute for Research amounted to approximately \$860,000.

The most noteworthy publications of the division are: Afilalo J, Flynn AW, Shimony A, Rudski LG, Agnihotri AK, Morin JF, Castrillo C, Shahian D, Picard MH. Incremental Value of the Preoperative Echocardiogram to Predict Mortality and Major Morbidity after Coronary Artery Bypass Surgery. *Circulation*. 2012 Dec 12. [Epub ahead of print] and Joyal D, Thompson CA, Grantham JA, Buller CE, Rinfret S. The retrograde technique for recanalization of chronic total occlusions: a step-by-step approach. *JACC Cardiovasc Interv* 2012;5(1):1-11.

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 was attended by more than 120 participants from across Quebec and beyond. All division members participated and excelled in teaching activities at all levels.

Annabel Chen-Tournoux, MD

Undergraduate: 2 hours, EKG III and Chest pain & palpitations

-Clerkship teaching: cardiac ischemic syndromes, 1 hour

Postgraduate: CCU/2NE ward: 3 weeks, 3 fellows, Consult service: 10 Fellows

-Echo lab: 5 echo Fellows

Other:

-McGill/JGH Echo Symposium

-Thursday Evening Learning Series,

-Hopital du Sacré-Cœur 9e symposium annuel d'échocardiographie

-Participation: Orientation for New Faculty

Mark J. Eisenberg, MD MPH FACC FAHA

- Undergraduate: -Evidenced-Based Medicine Small Groups (6 hrs)
- Postgraduate: Electrocardiogram Interpretation for Cardiology Residents (3 hrs)
- Clinical Teaching
Cardiac Catheterization Laboratories (>160 hrs/year) – Cardiology Fellows
Consultations (>120 hrs/year) – Cardiology Fellows, Residents, Medical Students
- Supervision:
 - Research Supervision of Cardiology Fellows, Medical Residents, Postdoctoral fellows, Graduate Students, Thesis Internal Examiner, 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 (S. Akhtari x 2, R. Friedlander x 1)
- Academic Half Day teaching and curriculum design
- PGY4 Introduction to Cardiac Procedures Course ½ day simulation
- 6-7 weeks CCU/year
- Consult service
- 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

Vartan Mardigyan, MD

- Undergraduate: 2 hrs 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; 4 hrs of didactic teaching to internal medicine and cardiology fellows on other subjects (ACS, ECGs, Constrictive Pericarditis).
- 5 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:
 - 2 hours of teaching to Family Doctors on the management of Atrial Fibrillation
 - 30 minute talk to Family Doctors on the evaluation and management of Syncope at their annual CME symposium
 - 4 hours of talks to the Cardiology group at the JGH (includes 2 hrs of Journal Club)
 - 1 hour of talk at a session on Anticoagulation in Atrial Fibrillation to McGill and University of Montreal cardiologists

Langleben, David

- Undergraduate: 4-6 hours, Evaluation of Chest pain and ECG basic

Postgraduate: Teaching to residents on PH, Internal Medicine 2-3 hours/year, Cardiology program 2-3 hours/year
-Clinical supervision: CCU 6-8 weeks/year
-Consults
-PH Clinic 6-8 hours/year (Pulmonary fellows and Internal Medical residents)

Lawrence Rudski, MD

Undergraduate: 54.5 - senior physician rounds and EKG rounds;
Postgraduate: 6 hours - cardiology and echo rounds
Supervision:
-4 weeks CCU, approx. 4 weeks consults, 2 days per week echocardiography teaching of PGY 4-7 residents
Other:
-JGH-McGill Cardiovascular Imaging Symposium - organizer
-McGill Family Medicine Refresher - Participant
-McGill TELS - organizer
-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"
-Leadership Development Program -4 days January 2012
-Participant in course of leadership training, American Society of Echocardiography
-Provided expert echocardiography interpretation for MUHC
- Lachine Campus, serving as mentor to Dr. Sunil Garg
-Provided expert echocardiographic interpretation for Hôpital Brome-Mississquoi Perkins serving as mentor to Dr. Jennifer Nguyen
-Provided expert second opinion in echocardiography to Hôpital Suroit in Amos to Dr. P.O. Roy

Caroline Michel, MD

-Undergraduate: 20 hours, Osler fellow; 5 hours, cardio lectures in hospital
-Postgraduate: Cardio fellow ½ day 1 hrs; Family Medicine ½ day 1 hours
-Clinical Supervision: Consults 160 hours, CCU, 320 hours, Echo Lab 500 hours; Hear Failure Clinic 20 hours

Igal Sebag, MD

-Undergraduate: 2 hours
-Postgraduate: 14 hours
Clinical Trainees Supervised
-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)

- Third Annual McGill / Jewish General Hospital Echocardiography Scientific Symposium (in partnership with the McGill Faculty for Continuing Medical Education)
- Course Founder and co-Director, Title: Update in Echocardiography with a Focus on Multimodality Imaging (110 attendees from across Quebec)
- Founder and Co-Director of the McGill / Jewish General Hospital Post-Graduate Echocardiography Course.

Richard Sheppard, MD

Undergraduate:

- Small Group Physiology Teaching for CV Physiology (Med School) 2-3 hours
- 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:

- Same as Undergraduate except no Osler fellowship in postgraduate program
- 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:

- Participation in admissions committee, interviewing and participating the process of choosing medical students among applicants.
- 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:

- 1 hour lecture on ACHD for general practitioners
- Talks at international conferences

Ann Walling, MD

- Undergraduate: 25 hours
 - Postgraduate: 3 days per week in Echo Lab; Academic half-day 2 hours
- Clinical Supervision:
- 4-6 weeks/year on CCU and consults (daily rounds with extensive teaching)
 - 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 participated in community activities, including organizing and speaking at patient support groups for pulmonary hypertension, as well as public lectures at community events.

Of note is Dr. Lawrence Rudski as Session Chair for “Meet the Experts” on Imaging the Right Ventricle at the American College of Cardiology Annual Scientific Sessions in 2012.

4. Partnerships:

The division collaborates with the McGill University Health Centre in key areas of congenital and structural heart disease, heart failure, and imaging and several key research arenas.

5. Milestones:

Dr. Jonathan Afilalo joined the JGH after completing fellowships in Echocardiography at the Massachusetts General Hospital, and Cardiac Magnetic Resonance Imaging at Beth Israel Hospital in Boston. He holds a M.Sc. in Epidemiology. He is tasked clinically with establishing a cardiac MRI program at McGill. His research program includes the role of novel indices of frailty in predicting risk in cardiac procedures. He is funded by the FRSQ, Heart and Stroke, and CIHR.

Dr. Annabel Chen-Tournoux was recruited to the JGH. Dr. Chen-Tournoux completed cardiology and echocardiography training at the Massachusetts General Hospital and then worked in Paris as a Senior Program Office for the Leducq Foundation, a private endowment-based foundation supporting research and the development of new technology in cardiac and neurovascular sciences. She continues to work with the Foundation as a Consultant. She has joined the JGH cardiology and imaging group, and is further tasked with developing a cardio-metabolic program focusing on high risk individuals with obesity.

6. Honours, awards, and prizes:

Dr. Jonathan Afilalo received the 2012 Royal College Gold Medal in Surgery for his manuscript entitled “Gait Speed as an Incremental Predictor of Mortality and Major Morbidity in Elderly Patients Undergoing Cardiac Surgery.” This prestigious award includes a cash prize of \$5,000 and a gold medal emblazoned with the crest of the Royal College of Physicians and Surgeons of Canada as well as an invitation to participate in the Royal College Visiting Medalist Program at the College and Canadian faculties of medicine.

7. Fundraising: None reported

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

The JGH has an ambitious clinical plan for 2013. In the clinical arena, two novel programs will be developed – Cardio-oncology (with a clinical and research component) and a comprehensive

vascular health initiative, merging cardiology, internal medicine, nephrology, endocrinology, and neurology, as well as all the support services such as nutrition, smoking cessation, and nursing. Our research focus will include applications of frailty, smoking cessation, pulmonary hypertension, and cardio-oncology with a focus on imaging.

Continued collaboration with the MUHC in key areas of congenital and structural heart disease, heart failure, and imaging will be prioritized, as will collaboration in several key research arenas.

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

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

- Affilalo, Dr. Jonathan, Assistant Professor, Faculty of Medicine, McGill University (GFT-U)
- Chen-tournoux, Dr. Annabel Active, 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
Measurement of Frailty to Identify High-Risk Elderly Patients Referred for Surgical and Transcatheter Aortic Valve Replacement

Fonds de recherche Québec - Santé
Subvention d'établissement de jeune chercheur

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

Boutet, K

Actelion Pharmaceuticals Canada Inc.
A Multicenter, Double-Blind, Placebo-Controlled Phase 3 Study to Demonstrate the Efficacy

and Safety of Act-293987 in Patients with Pulmonary Arterial Hypertension

Chen-Tournoux, A

Department of Medicine, JGH

Echocardiographic quantification of epicardial fat and its implications for cardiovascular risk

Eisenberg, M

Canadian Institutes for Health Research

Butting Out: Seeing Through the Smoke

Canadian Institutes for Health Research

The Safety of Combined Oral Contraceptives: a Systematic Review and Meta-Analysis

Canadian Institutes for Health Research

A Systematic Review and Meta-Analysis of Combination Therapies for Smoking Cessation

Eli Lilly Canada Inc.

Canadian Observational Antiplatelet Study (Coapt): Description of the Length of Dual Antiplatelet Therapy, Patient Characteristics, Treatment Patterns, and Processes of Care in Canadian Patients with Myocardial Infarction Undergoing Percutaneous Coronary

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 AMBrisentan (Volt)

Northern Therapeutics Inc.

The Phacet Trial, Pulmonary Hypertension Assessment of Cell Therapy

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

Jewish General Hospital Foundation
Avi Shimony - Azrielli Fellow

Aventis Behring Canada
Elcami Clinic

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

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

Sheppard, R

Department of Medicine, JGH
Dysfunction of stress response systems and adverse cardiac remodeling after myocardial
infarction

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

New England Research Institute (NERI)
Topcat - Treatment of Preserved Cardiac Function Heart Failure with An Aldosterone
Antagonist

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

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 2012 calendar year:

Afilalo, Jonathan

--**Afilalo J**, Mottillo S, Eisenberg MJ, Alexander KP, Noiseux N, Perrault LP, Morin JF, Langlois Y, Ohayon SM, Monette J, Boivin JF, Shahian DM, Bergman H. Addition of frailty and disability to cardiac surgery risk scores identifies elderly patients at high risk of mortality or major morbidity. *Circ Cardiovasc Qual Outcomes*. 2012;5(2):222-8.

--**Afilalo J**, Flynn AW, Shimony A, Rudski LG, Agnihotri AK, Morin JF, Castrillo C, Shahian D, Picard MH. Incremental Value of the Preoperative Echocardiogram to Predict Mortality and Major Morbidity After Coronary Artery Bypass Surgery. *Circulation*. 2012 Dec 12. [Epub ahead of print].

--**Afilalo J**, Rasti M, Ohayon SM, Shimony A, Eisenberg MJ. Off-pump vs. on-pump coronary artery bypass surgery: an updated meta-analysis and meta-regression of randomized trials. *Eur Heart J*. 2012;33(10):1257-67.

--Lawler PR, **Afilalo J**, Eisenberg MJ, Pilote L. Exposure to low-dose ionizing radiation from cardiac imaging among patients with myocardial infarction. *Am J Cardiol*. 2012 Jan 1;109(1):31-5.

--Flynn AW, **Afilalo J**, Agnihotri AK, Castrillo C, Shahian DM, Picard MH. Aortic sclerosis is associated with mortality and major morbidity in patients undergoing coronary artery bypass surgery. *Heart*. 2012 Dec 4. [Epub ahead of print].

--Shimony A, Fox BD, **Afilalo J**, Rudski LG, Hirsch A, Langleben D.. Pulmonary arterial hypertension in the elderly-clinical characteristics and long-term survival. *Lung*. 2012 Dec;190(6):645-9.

--Lapointe-Shaw L, **Afilalo J**, Rudski LG. Society for Cardiac Magnetic Resonance Imaging – Case of the Week -Number 12-02: Echo and CMR in Acromegalic Cardiomyopathy – <http://www.scmr.org/caseoftheweek/2012/2687.html> – online - finalist 2012 SCMRI Conference February 2013

--Opotowsky AR, Ojeda J, Rogers F, Prasanna V, Clair M, Moko L, Vaidya A, **Afilalo J**, Forfia PR. A simple echocardiographic prediction rule for hemodynamics in pulmonary hypertension. *Circ Cardiovasc Imaging*. 2012 Nov;5(6):765-75.

Chen-Tournoux, Annabel

--Tournoux F, Singh JP, Chan RC, **Chen-Tournoux A**, McCarty D, Manzke R, Ruskin JN, Semigran M, Heist EK, Moore S, Picard MH, Weyman AE. Absence of left ventricular apical rocking and atrial-ventricular dyssynchrony predicts non-response to cardiac resynchronization therapy. *Eur Heart J Cardiovasc Imaging* 2012;13:86-94.

Eisenberg, Mark J

--Eisenberg MJ. Routine periodic stress testing in asymptomatic patients following coronary revascularization: Is it worth the effort? *Arch Intern Med*, 172:861-3, 2012

--Shimony A, **Eisenberg MJ**, Filion KB, Amit G. Beneficial effects of right ventricular non-apical vs. apical pacing: A systematic review and meta-analysis of randomized controlled trials. *Europace*, 14:81-91, 2012

--Friedland SN, *Leong A, Filion KB, Berry EM, Genest J, *Lega IC, *Mottillo S, Poirier P, *Reoch J, **Eisenberg MJ**. The cardiovascular effects of peroxisome proliferator-activated receptor agonists. *Am J Med*, 125:126-33, 2012

--Garfinkle M, *Lawler PR, Filion KB, **Eisenberg MJ**. Red blood cell transfusion and mortality among patients hospitalized for acute coronary syndromes: A systematic review. *Int J Cardiol*, Epub Feb 1, 2012

--Friedland SN, **Eisenberg MJ**, *Shimony A. Meta-analysis of randomized controlled trials on effect of cilostazol on restenosis rates and outcomes after percutaneous coronary intervention. *Am J Cardiol*, 109:1397-404, 2012

--Tahiri M, *Mottillo S, Joseph L, Gervais A, Pilote L, **Eisenberg MJ**. Alternative smoking cessation aids: A meta-analysis of randomized controlled trials. *Am J Med*, 125:576-84, 2012

--Miller C, *Grandi SM, *Shimony A, Filion KB, **Eisenberg MJ**. Meta-analysis of efficacy and safety of new oral anticoagulants (dabigatran, rivaroxaban, apixaban) versus warfarin in patients with atrial fibrillation. *Am J Cardiol*, 110:453-60, 2012

--Ionescu-Ittu R, Abrahamowicz M, Jackevicius CA, Essebag V, **Eisenberg MJ**, Wynant W, Richard H, Pilote L. Comparative effectiveness of rhythm control vs. rate control drug treatment effect on mortality in patients with atrial fibrillation. *Arch Intern Med*, 172:997-1004, 2012

--Donath E, **Eisenberg MJ**. Do physicians/researchers trade stock based on privileged information? A closer look at trading patterns surrounding the annual ASCO conference. *J Law Med Ethics*, 40:391-3, 2012

--AvgilTsadok M, Jackevicius CA, Essebag V, **Eisenberg MJ**, Rahme E, Humphries KH, Tu JV, Behloul H, Pilote L. Rhythm versus rate control therapy and subsequent stroke or transient ischemic attack in patients with atrial fibrillation. *Circulation*, 126:2680-7, 2012

--Bashore TM, Balter S, Barac A, Byrne JG, Cavendish JJ, Chambers CE, Hermiller JB Jr, Kinlay S, Landzberg JS, Laskey WK, McKay CR, Miller JM, Moliterno DJ, Moore JW, Oliver-McNeil SM, Popma JJ, Tommaso AC, Harrington RA, Bates ER, Bhatt DL, Bridges CR, **Eisenberg MJ**, Ferrari VA, Fisher JD, Gardner T, Gentile F, Gilson MF, Hlatky MA, Jacobs AK, Kaul S, Moliterno DJ, Mukherjee D, Rosenson RS, Weitz HH, Wesley DJ. 2012 American College of Cardiology Foundation/Society for Cardiovascular Angiography and Interventions expert consensus document on cardiac catheterization laboratory standards update: American College of Cardiology Foundation Task Force on Expert Consensus Documents Society of Thoracic Surgeons Society for Vascular Medicine. *Catheter Cardiovasc Interv*, 80:E37-49, 2012

Joyal, Dominique

--**Joyal D**, Bertrand OF, Rinfret S, *Shimony A, Eisenberg MJ. Meta-analysis of ten trials on the effectiveness of the radial versus the femoral approach in primary percutaneous coronary intervention. *Am J Cardiol*, 109:813-8, 2012

--Bertrand OF, B elisle P, **Joyal D**, Costerousse O, Rao SV, Jolly SS, Meerkin D, Joseph L. Comparison of transradial and femoral approaches for percutaneous coronary interventions: a systematic review and hierarchical Bayesian meta-analysis. *Am Heart J* 2012;163(4):632-48.

-**Joyal D**, Thompson CA, Grantham JA, Buller CE, Rinfret S. The retrograde technique for recanalization of chronic total occlusions: a step-by-step approach. *JACC Cardiovasc Interv* 2012;5(1):1-11.

Langleben, David

--Fox B, Kahn SR, **Langleben D**, Eisenberg MJ, Shimony A. Efficacy and safety of novel oral anticoagulants for treatment of acute venous thromboembolism: direct and adjusted indirect meta-analysis of randomised controlled trials *BMJ*. 2012; 345: e7498.

--Azoulay L, Dell'Aniello S, Simon TA, **Langleben D**, Renoux C, Suissa S. A net clinical benefit analysis of warfarin and aspirin on stroke in patients with atrial fibrillation: a nested case-control study. *BMC Cardiovascular Disorders* 2012;12:49.

--Fox B, **Langleben D**, Hirsch AM, Schlesinger RD, Eisenberg MJ, Joyal D, Blenkhorn F, Lesenko L. Hemodynamic stability after transitioning between endothelin receptor antagonists in patients with pulmonary arterial hypertension. *Can J Cardiol*, Epub July 20, 2012.

--Shimony A, Fox B, **Langleben D**, Rudski LG. Incidence and Significance of Pericardial Effusion in Patients with Pulmonary Arterial Hypertension. *Can J Cardiol*. 2012 Jun 19. [Epub ahead of print]

--Fox BD, Shimony A, **Langleben D**, Hirsch A, Rudski LG, Schlesinger R, Eisenberg MJ, Joyal D, Hudson M, Boutet K, Serban A, Masetto A, Baron M. High prevalence of occult left heart disease in scleroderma-pulmonary hypertension. *Eur Respir J*. 2012 Dec 20. [Epub ahead of print].

Mardigyan, Vartan

--**Mardigyan V**, Verma A, Birnie D, Guerra P, Redfearn D, Becker G, Champagne J, Sapp J et al. Anticoagulation Management Pre- and Post Atrial Fibrillation Ablation: A Survey of Canadian Centres. *Can J Cardiol*. 2012 Jul 26. [Epub ahead of print].

Michel, Caroline

--Benbarkat H, Addetia K, Eisenberg MJ, Sheppard R, Filion KB, **Michel CM**. Application of the Seattle Heart Failure Model in patients > 80 years of age enrolled in a tertiary care heart failure clinic. *Am J Cardiol*, 110:1663-6, 2012

Rudski, Lawrence G

--**Rudski LG**, Afilalo J. The Blind Men of Indostan and the Elephant in the Echo Lab. *J Am Soc Echo* 2012;25: 714-717.

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Sebag, Igal A

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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. Members have succeeded in the competing renewal of their grants as well as in obtaining additional support from peer-reviewed granting agencies.

Submitted by:

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