

**Annual Report Division of Cardiology  
Department of Medicine - Jewish General Hospital  
January 1, 2015 - December 31, 2015**

## **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 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. This is being done with the aim of a full clinical integration with the upcoming move to a new cardiac floor in Pavilion K, as well as to improve 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**

**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 to evaluate emerging imaging technologies and novel biomarkers. .

**Pericardial Diseases Program:** In 2015, first line treatment for patients requiring pericardial drainage has been a pigtail catheter with extended drainage inserted percutaneously, done in the Cardiac Unit. 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 Lipès of the Department of Critical Care, with assistance from our imaging lab. We have begun receiving referrals from numerous institutions in the city.

**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 and look forward to joining forces with Dr Stefane Rinfret when he commences his position as Director of Invasive Cardiology at the MUHC, 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:**

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. Drs Judith Therrien and David Langleben continued their joint work with the Faculty of Engineering on a novel device to create a circulatory shunt for patients with congenital heart disease.

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

Lang RM, Badano LP, Mor-Avi V, **Afilalo J**, Armstrong A, Ernande L, Flachskampf FA, Foster E, Goldstein SA, Kuznetsova T, Lancellotti P, Muraru D, Picard MH, Rietzschel ER, **Rudski L**, Spencer KT, Tsang W, Voigt JU. Recommendations for cardiac chamber quantification by echocardiography in adults: an update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging. *J Am Soc Echocardiogr*. 2015 Jan;28(1):1-39. e14.

Claveau D, Piha-Gossack A, Friedland SN, **Afilalo J**, **Rudski L**. Complications Associated With Nitrate Use in Patients Presenting With Acute Pulmonary Edema and Concomitant Moderate or Severe Aortic Stenosis. *Ann Emerg Med*. 2015 Oct;66(4):355-362. e1

**Eisenberg MJ**, Windle SB, Roy N, Old W, Grondin FR, Bata I, Iskander A, Lauzon C, Srivastava N, Clarke A, Cassavar D, Dion D, Haught H, Mehta SR, Baril JF, Lambert C, Madan M, Abramson BL, Dehghani P; EVITA Investigators. Varenicline for Smoking Cessation in Hospitalized Patients with Acute Coronary Syndrome. *Circulation*. 2016 Jan 5;133(1):21-30. doi: 10.1161/CIRCULATIONAHA.115.019634. Epub 2015 Nov 9. Simultaneous publication with presentation at late-breaking trials, American Heart Association

Tan TC, Flynn AW, **Chen-Tournoux A**, **Rudski LG**, Mehrotra P, Nunes MC, Rincon LM, Shahian DM, Picard MH, **Afilalo J**. Risk Prediction in Aortic Valve Replacement: Incremental Value of the Preoperative Echocardiogram. *J Am Heart Assoc*. 2015 Oct 26;4(10):e0

**Langleben D**, Orfanos SE, Giovinazzo M, Schlesinger RD, Hirsch AM, Blenkhorn F, Lesenko L, Armaganidis A, Catravas JD. Acute vasodilator responsiveness and microvascular recruitment in idiopathic pulmonary arterial hypertension. *Ann Intern Med*. 2015 Jan 20;162(2):154-6

## **2. Teaching and learning (undergraduate and graduate):**

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:** In the spirit of giving back to secondary education, the JGH Division of Cardiology continued its weekly involvement in the PSBGM's HOPS program welcoming top Secondary V students into our division weekly during the school year. In addition, we continued our annual Cardiovascular Imaging Symposium, led by Drs Igal Sebag, Rudski and our Chief Sonographer, Marie-Josée Blais, which attracted over 150 physicians and sonographers. Members of the Division were involved in organizing the annual Canadian Society of Echocardiography Weekend (500 attendees) as well as symposia and workshops at the Canadian Cardiovascular Congress.

### **Annabel Chen-Tournoux, MD**

Undergraduate:

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

Postgraduate:

-CCU/2NE 4 weeks, 4 fellows

-Consult service: 4 weeks 10 fellows

-Echo lab: 3-4 ½ days 4 echo fellows; Lachine echocardiography 2-4 weeks/year

-Revision and organization of academic half-day curriculum for cardiology residents

-Co-Director, Cardiology Residency Program

Other

-CCU rounds (students, residents, fellows) 4 Hours

-OPD clinics (residents, fellows, students) 3-4 ½ days/week

-JGH Cardiology Division Journal Club: 1 hour

-McGill/JGH Echo Symposium

-American Society of Echocardiography Scientific Sessions

-JGH Dept of Family Medicine Grand Rounds & course for Family Physician 2. 5 hour

-Post AHA Evening Conference sponsored by Bayer Healthcare

Manuscripts reviews (ad hoc): American Journal of Cardiology (4); Circulation: Heart Failure (3); Journal of Ultrasound in medicine (2); Trials (1)

-Attendance Grand and Divisional rounds: 63 hours

-Attendance at national and international conferences: 6

### **Mark J. Eisenberg, MD MPH FACC FAHA**

Undergraduate & Postgraduate:

-Evidence-Based Medicine Small Groups (8 hrs)

-Electrocardiogram Interpretation for Cardiology Residents (3 hrs)

-EXMD teaching Seminar in Biomedical Research: Fall & Winter - 24 hrs.

-Clinical Teaching

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

-Treadmill/nuclear: 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

-Mentoring MD-PhD students

-CCU: training medical students, residents & fellows

Other

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

-Organized & moderated Highlight Events for 4 major international conferences in the McGill Cardiology Community

-Prepared syllabus for the CME at Sea Cardiology course & co-led the course in July 2015

-Weekly discussions with referring physicians & cardiology students

**Regina Husa, MD**

-Undergraduate: 14 hours

-General 2 hours, Small Group 4 hours; Simulation Center 6 hours, Orthopedics 3 Hours, Ultrasound 3 hours

-Heart Sounds course for Undergraduate students

-History Taking lecture

-Director of Accreditation

-PGME regular meeting with Program Directors and Administration to teach about accreditation process

-Supervise Cardiology residents' Clinic 3 hours 1-2/month (120 hours)

-Teaching daily when on service 1 hours x 6 weeks/year and consults 10-20 hours (50 hours)

Supervise Cardiology Residents in research on role of echo in cardiac arrest

-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: 2 hrs of small group talks on ECG interpretation with medical students.
- Postgraduate: 10 hrs didactic teaching to cardiology fellows during a dedicated pacemaker half-day with hands on teaching of the pacemaker interrogation process and didactic teaching to internal medicine and cardiology fellows on other subjects (ACS, ECGs, Constrictive Pericarditis).

Clinical Supervision: Procedures, bedside teaching, etc: 30 hours

- Internal Medicine residents: 10 hours
- 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
- 5 hours of talks to the Cardiology group at the JGH (includes 1 hrs of Journal Club)

**Lawrence Rudski, MD**

- Undergraduate: 4. 5 hours - Expert physician rounds; small group physical exam sessions
- Postgraduate: 6 hours - cardiology and echo rounds

Supervision:

- 5 weeks CCU, approx. 5 weeks consults, 4 half-days per week echocardiography teaching of PGY 4-7 residents
- Clinical Supervision
- Cardiology Clinic – occasional
- HOPS program, EMSB – Sec. V Students – 12 half days
- Supervision of Dr. David Claveau, McGill Emergency Medicine
- Supervision of Nimrod Blank, post-doctoral fellow and cardiologist from Israel

Other:

- JGH-McGill 6<sup>th</sup> Annual Cardiovascular Imaging (Echocardiography) Symposium - Co-Director
- Program Committee, Annual Canadian Echo Weekend, Canadian Society of Echocardiography, Toronto, April 2015.
- 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; Expert Physician Rounds (15 students, 1.5 hours)
- Postgraduate: 14 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) 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 (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)
- Sixth 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 (8-20 weeks per year)
- Consult Service teaching medical students (8-9 weeks total per year all day)
- Monthly series of lectures for CCU team (CHF)
- 1-2 months supervision of cardiology fellows in longitudinal clinic (3 hours per clinic)
- Lectures on chest pain and palpitations 1-2 hours per year

Postgraduate:

- Academic Half Day for Internal Medicine Residents (3 hours) 2-3 times per year
- 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  
-1 day/week echo teaching to fellows  
**Other:** -Talks at international conferences

**Ann Walling, MD**

-Undergraduate: 25 hours  
-Postgraduate: Teach in echo lab to cardio residents and fellows 4-5 hours/day, 2 times per week for 40 weeks/year (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. 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

**6. Honours, awards, and prizes:**

Dr Rudski was named to the Board of Governors of the American College of Cardiology. Dr Mardigyan was awarded the McGill Adult Cardiology Training Program teacher of the year. Dr. Eisenberg presented his late breaking trial on smoking cessation at the American Heart Association annual scientific session with simultaneous publication in the prestigious Journal, Circulation.

**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:

- 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**

Fondation des maladies du coeur du Canada (FMCC)	Measurements of frailty to identify high-risk elderly patients referred for surgical and transcatheter aortic valve replacement.	11,126
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	22,778
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	1,236
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	7,527
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	91,626

#### **CHEN-TOURNOUX, Annabel**

Department of Medicine, JGH	Echocardiographic quantification of epicardial fat and its implications for cardiovascular risk	12,000
Instituts de recherche en santé du Canada (IRSC)	MITNEC B5: Non-isotope based imaging modalities vs 99mTc SPECT myocardial perfusion imaging (MPI) to detect myocardial ischemia in patients at high risk for ischemic cardiovascular events.	8,562

#### **EISENBERG, Mark**

Université McGill	The safety and efficacy of ABSORB bioresorbable vascular scaffold: A systematic review.	1,000
Instituts de recherche en santé du Canada (IRSC)	Apixaban and the risk of bleeding: a meta-analysis of randomized controlled trials.	2,834
Université McGill	Pharmacological options for stroke prevention among patients undergoing trans-aortic valve implantation (TAVI).	3,125
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.	35,000
Instituts de recherche en santé du Canada (IRSC)	Hypertensive Disorders in Pregnancy and the Risk of Subsequent Cardiovascular Disease	35,000
Instituts de recherche en santé du Canada (IRSC)	Optimizing physician training in motivational communication (MC) skills for health behavior change	4,339

Instituts de recherche en santé du Canada (IRSC)	Optimizing physician training in motivational interviewing (MI) to improve MI competency, patient health behaviors, and morbidity among patients with cardiovascular and chronic lung disease	4,540
Instituts de recherche en santé du Canada (IRSC)	Population Level Evaluation of Ablation Therapies in Atrial Fibrillation	17,211
Instituts de recherche en santé du Canada (IRSC)	The efficacy and safety of smoking cessation interventions in patients with cardiovascular disease: A meta-analysis of randomized controlled trials.	49,980
Instituts de recherche en santé du Canada (IRSC)	The clinical, regulatory, and ethical implications of electronic cigarettes: A knowledge synthesis grant.	91,484
Instituts de recherche en santé du Canada (IRSC)	Evaluating the efficacy of E-cigarette use for smoking cessation (E3) trial.	161,604
Pfizer Canada Inc.	GA3041Z4-Evaluation of Varenicline-(Champix™) in smoking cessation for patients post-acute coronary syndrome (EVITA) trial.	30,000
<b>LANGLEBEN, David</b>		
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	12,000
Regroupement de particuliers	Cath lab education fund.	1,500
Actelion Pharmaceuticals Canada Inc.	A prospective, multicenter, double-blind, randomized, placebo-controlled, parallel-group, 12-week study to evaluate the safety and tolerability of macitentan in subjects with combined pre-and post-capillary pulmonary hypertension (CpcPH)	5,800
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.	9,218
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.	9,802
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.	11,000
Institut de Cardiologie de Montréal (ICM)	Phase-II study of the use of PulmoBind for molecular imaging of pulmonary hypertension.	60,500

**MICHEL, Caroline**

National Institutes of Health (NIH) (USA)	Phosphodiesterase Type 5 inhibition with Tadalafil changes outcomes in heart failure (PITCH-HF).	2,940
Centre universitaire de santé McGill (CUSM)	The ACE switchback study.	7,250
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	22,547
Aventis Pharma	Heart failure clinic equipment donation.	153,000
<b>RUDSKI, Lawrence</b>		
Department of Medicine, JGH	Echocardiography-based research on the right heart	12,000
Israel Cancer Research Fund (ICFR)	ICRF Fellowship.	12,363
Israel Cancer Research Fund (ICFR)	ICRF Fellowship.	37,637
Canadian Heart Research Center	Acute coronary syndromes quality enhancement research initiative III. ACS III QuERI.	2,000
Genzyme Canada	Prevalence of Anderson-Fabry disease (AFD) in multiple high risk populations in a single hospital-based setting.	19,245
<b>SEBAG, Igal</b>		
Department of Medicine, JGH	Matrix-array imaging for real-time, three-dimensional echocardiography and evolving techniques in cardiac mechanics	12,000
<b>SHEPPARD, Richard</b>		
Bristol-Myers Squibb Canada Inc. 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.	2,425
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 ...	4,000
BioMérieux SA (France)	Galectin-3 as an early and sensitive marker for anthracyclines (with or without Trastuzumab) and Tyrosine kinase inhibitor induced cardiotoxicity	17,038
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	44,448
<b>TOTAL</b>		<b>1,049,685</b>

## 2. Scholarly works published in the 2015 calendar year:

--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. doi: 10.1016/j.cjca.2015.12.002. Epub 2015 Dec 9. PubMed PMID: 26821840.

--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 Jan 29. pii: ezw005. [Epub ahead of print] PubMed PMID: 26825107.

--Claveau D, Piha-Gossack A, Friedland SN, **Afilalo J**, Rudski L. Complications Associated With Nitrate Use in Patients Presenting With Acute Pulmonary Edema and Concomitant Moderate or Severe Aortic Stenosis. *Ann Emerg Med*. 2015 Oct;66(4):355-362. e1. doi: 10.1016/j.annemergmed.2015.03.027. Epub 2015 May 19. PubMed PMID: 26002298.

--Goldfarb M, Drudi L, Almohammadi M, Langlois Y, Noiseux N, Perrault L, Piazza N, **Afilalo J**. Outcome Reporting in Cardiac Surgery Trials: Systematic Review and Critical Appraisal. *J Am Heart Assoc*. 2015 Aug 17;4(8):e002204. doi: 10.1161/JAHA.115.002204. PubMed PMID: 26282561; PubMed Central PMCID: PMC4599473.

--**Afilalo J**, Grapsa J, Nihoyannopoulos P, Beaudoin J, Gibbs JS, Channick RN, Langleben D, Rudski LG, Hua L, Handschumacher MD, Picard MH, Levine RA. Leaflet area as a determinant of tricuspid regurgitation severity in patients with pulmonary hypertension. *Circ Cardiovasc Imaging*. 2015 May;8(5). pii: e002714. doi: 10.1161/CIRCIMAGING.114.002714. PubMed PMID: 25977303; PubMed Central PMCID: PMC4435735.

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Book chapters:

### **Lawrence Rudski**

--ASE's Comprehensive Echocardiography, 2nd Edition, Wolters Kluwer, Editor: Roberto Lang . Publication 2015

--Chapter 35. RV systolic and diastolic function, Role: Primary author. Co-authors: Drs Denisa Muraru University of Padua, Padua, Italy; Jonathan Afilalo, JGH; Steven Lester, Mayo Clinic, Scottsdale AZ

--Chapter 37. Right atrium Role, Primary author. Co-authors: Drs. Nimrod Blank, Postdoctoral Fellow, Jewish General Hospital; Julia Grapsa, Hammersmith Hospital, London, UK

--Chapter 82. The Right Ventricle in Dilated Cardiomyopathy, Role: Primary author. Co-author: Dr. Shawn Pun, Fellow, McGill Cardiology Program

--Chapter 36. Right Heart Hemodynamics (co-author with primary author - S. Lester, Mayo Clinic, Scottsdale AZ)

**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.

**SECTION III - CONFIDENTIAL INFORMATION**

**1. Consulting activities:**

<b>Name of Faculty Member</b>	<b>Private Sector Consulting (# of days)</b>	<b>Public Sector Consulting (# days)</b>	<b>Other (# of days – please explain)</b>	<b>Total</b>
Langleben, D.	Pharma		4 days/month	48

Submitted by:

Lawrence Rudski, MD  
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