

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

SUMMARY

The Division of Endocrinology and Metabolism has continued its pursuit of excellence in patient care, research and training.

Introduction:

Clinical Activities:

Endocrinology is largely an outpatient specialty. Including the Gestational Diabetes Clinic and Bone and Osteoporosis Clinics that do not function in our premises, the number of visits per year exceeded the 30,000. Outpatient clinics are run around the week by GFT's. Non-GFT's run clinics on Monday and Thursday mornings. The increase in the number of patients is still too long. Constraints result from the RAMQ that is trying to restrict the number of endocrinologists. This problem has been solved at the expense of physician scientists increasing their clinical hours, reducing their research time. We also have established a triage system to see first those patients in most urgent need (e.g. decompensated diabetics, thyrotoxic patients). We have stretched to the limits the secretarial time available, which has not increased in over 7 years in spite the doubling of the numbers of patient visits. Although all staff physicians see patients spanning the whole spectrum of endocrine and metabolic diseases, some clinics are focused on a particular condition, as shown in the table below.

In-patient activities are centered on the Endocrine Consulting Service, attended by our staff physicians in a 2-week rotating schedule through the year. The endocrine service is largely covered by 10 of the 11 GFT's, which burdens them – including the physician scientists- with a minimum of 6 weeks per year. Volume of consults is approximately 1200/year. In addition, our staff is actively involved in CTU rotations. The Division does not have assigned beds and endocrine patients are admitted to general wards.

The Survival Skills Program of self-management education for patients with diabetes has continued to function regularly with private donations. No additional resources have been provided this year for the essential program.

Outpatient Clinics:

Monday AM: Diabetic Clinic (Kader); General Endocrinology (Schweitzer, Karaplis, Trifiro)
Monday PM: General Endocrinology (Karaplis, Assimakopoulos, Schweitzer)
Tuesday AM: Thyroid (Tamilia); General Endocrinology (Trifiro, Assimakopoulos, Schiffrin)
Tuesday PM: General Endocrinology (Assimakopoulos, Schiffrin, Christopoulos, Richards)
Wednesday AM: General Endocrinology (Trifiro, Majdan, Karaplis); Diabetic Foot Care
(Dr. R. Chaytor); Osteoporosis I (Trifiro); Gestational Diabetic, Pav.H (Kader)

Wednesday PM: General Endocrinology (Christopoulos, Richards, Majdan);
Osteoporosis II (Karaplis); Lipid Clinic (Schweitzer)
Thursday AM: General Endocrinology (Schiffrin, Tamilia, Clamen, Rizzo);
Thursday PM: General Endocrinology (Assimakopoulos, Schweitzer)
Friday AM: General Endocrinology (Schiffrin, Schweitzer, Trifiro, Christopoulos, Majdan)
Friday PM: General Endocrinology (Dr. O. Yu)

1. Research and publications:

2014 was another promising year for Endo Research. Our part-time Clinical Research Nurse was promoted to full-time, CRN/Insulin Pump Nurse. Six (6) clinical studies were conducted at the treatment center (see list below) and another Phase III with Bristol Myers Squibb under negotiation. One hundred and thirty-seven patients participated in these trials over the year. The 6 studies included: one Phase II interdepartmental trial involving Endocrinology, Gastroenterology and Oncology; One Phase III trial; three Phase IV trials including one sponsored by the CIHR; and one in-house study conducted by one of our Endocrinologists. In addition, we have also set-up bi-weekly dynamic testing, and a total of 11 insulin pump starts were initiated.

Research projects and publications are listed under Section II. Research activities and publications continue on the rise (see individual reports for details).

2. Teaching activities

The Division has continued to play an active role in joint activities with the other McGill Hospitals counterparts, such as Med-I Endocrine Physiology Course and Calcium Homeostasis, as well as hosting the Lipid-, Thyroid McGill Lectureships.

Our members continue to teach in McGill Graduate and Undergraduate courses such as Physiology (Tamilia), Advanced Endocrinology (Tamilia) and Neuroendocrinology (Tamilia).

Dr. Michael Tamilia has continued to receive the recognition of our young colleagues and students as a truly exceptional teacher. Drs. Tina Kader and Morris Schweitzer continue to be remarkable active in CME activities primarily addressed to general practitioners, internists and specialists. Thus, the JGH Endocrine Division has reached a high profile at the university, national and international levels.

Overall, the Division of Endocrinology is one of the most, if not the most, active in contributing its staff to teaching (Professional Skills and Introduction to Internal Medicine and Physiology) and CTU coverage within the Department of Medicine at the Jewish General Hospital.

Medical Students

-Metabolic Bone Disease in Unit 5, Med I; preparation of lecture notes, case study, and quiz for students and organizing small group tutors.

-One 1-hour lecture on metabolic bone disorders and two 1.5-hour small group sessions

Residents

- (i) Core lectures in Endocrinology
- (ii) Simulated oral examination in Internal Medicine

Postgraduate Students

Advances in Human Genetics: A post graduate course offered by the Department of Human Genetics: Three 1.5-hr lectures on the genetics of metabolic bone diseases.

Endocrine Residents (Fellows) and Medical Residents doing elective rotations participate in all our clinical activities. They are under the direct supervision of the Attending on service. Residents must attend clinics while not busy with the in-patient service. Some clinics are compulsory: Gestational Diabetes, Thyroid, Lipid and Osteoporosis Clinic. Our Division has become very popular for elective rotations among residents and students. All trainees rotating through the Division must attend Endocrine Grand Rounds (every Thursday from 11:30-12:30). This past year we have had an unusually high number of Endocrine Residents, and the same is expected for the next academic year. In addition to McGill Medical Students doing elective rotations, we have received students from UK, Australia, Finland, and Brazil during the last year. Notably, the majority of McGill candidates to McGill Endocrine Residents have come from our Internal Medicine training program over the last several years, a reflection of the positive influence of our staff on the Residents. The McGill Endocrine Teaching Program at large was highly rated by the trainees with our Division receiving the highest ratings in a large number of items, notably conferences, bedside and outpatient teaching, integration with basic sciences. Our weakest mark is on premises and facilities for Endocrine Residents.

In addition to these tutorial activities, our Division offers a yearly cycle of lectures on essential endocrinology for residents and non-endocrinologists in general. Our Division also actively participates in the undergraduate teaching of Endocrine Physiology and Calcium Homeostasis (Med-I Physiology) with 6 of our members being small group tutors this year (Assimakopoulos, Beitel, Kader, Karaplis, Schiffrin, and Trifiro). All GFT's have also been very active on CME accredited activities. Dr. Tina Kader has been traditionally active in CME to various groups of physicians, paramedical personnel, as well as in giving talks to the community at large on prevention of obesity and diabetes. Ms. Joyce Arsenault (Nurse, Certified Diabetes Educator), Ms. Laura Bergmame (nurse, Certified, Diabetes Educator) and Ms. Sondra Sherman (Dietitian) have worked together with Dr. Tina Kader in this latter endeavour.

The McGill Hospital Endocrine Division holds quarterly combined Endo Rounds, one of which is hosted by our Division. Our Division has for years hosted two major McGill Endocrine lectures, the McGill/Merck Frosst Lipid Lecture and the McGill/Abbott Thyroid Lecture.

In addition to the teaching activities described under Teaching Activities, above, Endocrine Grand Rounds, under the direction of Dr. Mark Trifiro, have continued to be a great success because of the timeliness of the subjects, the sensible balance of basic and clinical science and

the quality of the invited speakers. Endo Grand Rounds are given weekly from September to June.

3. Involvement in the community:

Members of the Division continue to serve in committees of granting agencies, 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.

4. Partnerships:

Dr. Tamilya collaborated with Dr. George Chong from Department of Pathology to apply genetic mutation analysis in the diagnosis of thyroid nodules and with Dr. Mark Trifiro and Dr. Elliot Mittmaker to characterize gene mutations in stored thyroid tumor specimens. Dr. Tamilya is developing the Thyroid Cancer Program in association with Head and Neck Oncology for McGill University.

The JGH Division of Endocrinology participates in the quarterly combined Endo Rounds held by the McGill Endocrine Division.

5. Milestones:

Dr. Brent Richards was promoted to Associate Professor with tenure.

6. Fundraising: None

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

The renovated space for the Division of Endocrinology has been helpful in providing excellent care as the division continues to place a high priority on patient care and in doing so seeks new clinical recruits either as full-time or as part time members. Efforts are being made to add another diabetic nurse to help with the ever-increasing referral of diabetic patients.

Other priorities include the expansion of both clinical research and basic research personnel. This will be a very arduous task given the many roadblocks at the university, government and hospital level; however the Division remains confident that when the right recruits come along, it will find the mechanisms to have them join its staff.

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

Dr. Mark A. Trifiro - Chief, Professor (GFT-U)

Dr. Peter Assimakopoulos - Associate Professor (GFT-H)
Dr. Stavroula Christopoulos - Assistant Professor (GFT-H)
Dr. Tina Kader – Associate Professor (GFT-H)
Dr. Andrew Karaplis - Professor (GFT-U)
Dr. Agnieszka Majdan - Assistant Professor (GFT-H)
Dr. John Brent Richards - Associate Professor (GFT-U)
Dr. Alicia Schiffrin - Professor (GFT-U)
Dr. Morris Schweitzer - Associate Professor (GFT-H)
Dr. Michael Tamilia - Associate Professor (GFT-H)
Dr. Oriana Yu – Assistant Professor (GFT-H)
Dr. Marvin Clamen - Faculty Lecturer (P/T)
Dr. Lilian Jukier - Adjunct Professor (P/T)
Dr. Arturo Rizzo - Assistant Professor (P/T)
Lenore Beitel, PhD - Assistant Professor

SECTION II - GRANTS, PUBLICATIONS, AND SERVICE OUTSIDE OF MCGILL

1. Grants and awards received

J. Brent Richards

-2009-2014: Canadian Institutes of Health Research, Operating Grant. Canadian Longitudinal Study on Aging. Role: Co-Investigator. \$23,500,000 over 5 years.

-2012-2016: Canadian Institutes of Health Research (CIHR): Pinpointing Causal Variants for Osteoporosis. Role: Nominated Principal Investigator (Co-PI: Tomi Pastinen). \$816,608 over 4 years. This grant ranked first for the CIHR Genetics panel.

-2011-2016: Canadian Institutes of Health Research (CIHR).Canadian Multicentre Osteoporosis Study. Role: Co-Applicant. \$3,422,052 over 5 years

Mark A. Trifiro

-2010-2015: Canadian Institutes of Health Research (CIHR) Innovative approaches to functional characterization of the androgen receptor in prostate cancer; P.I. Mark Trifiro, Co-Applicants: Miltiadis Paliouras and Edwin Wang; Operating Grant: total \$560,279

2014 Pharmaceutical Research Studies:

-CIHR, Phase IV MITY- Metformin in Women with T2DM in Pregnancy Trial Ongoing
-In house Insulin Therapy in T2DM-, study to evaluate insulin response at different c-peptide levels Continuing

-Amgen, Phase IV Protocol 2010128- Prolia Ongoing

-Amgen, Phase III Protocol 20110142- Efficacy/Safety of AMG 785 in treatment of postmenopausal Women with Osteoporosis Ongoing

-Genetics of Diabetes Complications, Ongoing

-Lilly, Phase IV, B3D-EW-GHDW, Teriparatide and Residronate in the Treatment of Patients with Severe Postmenopausal Osteoporosis: Comparative Effects Ongoing

2. Scholarly works published in the 2014 calendar year:

Brent Richards

--A Buil, AA Brown, T Lappalainen, A Viñuela, MN Davies, HF Zheng, **JB Richards**, D Glass, KS Small, R Durbin, TD Spector, ET Dermitzakis. Gene-gene and gene-environment interactions detected by transcriptome sequence analysis in twins. **Nature Genetics** [IF:29.7] 2014 Dec 1. doi: 10.1038/ng.3162.

--LE Mokry, O Ahmad, V Forgetta, G Thanassoulis, **JB Richards**. Mendelian Randomization Applied to Drug Development in Cardiovascular Disease: A Review. **Journal of Medical Genetics** [IF: 5.6]. 2014 Dec 16;0:1–9. doi:10.1136/jmedgenet-2014-102438

--PN. Taylor*, E Porcu*, S Chew*, PJ Campbell*, M Traglia, SJ. Brown, BH Mullin, HA Shihab, J Min, K Walter, Y Memari, J Huang, MR Barnes, JP Beilby, P Charoen, P Danecek, F Dudbridge, V Forgetta, C Greenwood, E Grundberg, AD Johnson, J Hui, EM Lim, S McCarthy, D Muddyman, V Panicker, JRB Perry, JT Bell, W Yuan, C Relton, T Gaunt, D Schlessinger, G Abecasis, F Cucca, GL Surdulescu, W Woltersdorf, E Zeggini, HF Zheng, D Toniolo, CM Dayan, S Naitza, JP Walsh, TD Spector, GD Smith, R Durbin, **JB Richards**, S Sanna, N Soranzo, NJ Timpson*, SG Wilson* and the UK10K Consortium. Whole Genome Sequence-Based Analysis of Thyroid Function. **Nature Communications**. [IF: 10.7]. In press Sept 26, 2014

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--Kraja AT, Chasman DI, North KE, Reiner AP, Yanek LR, Kilpeläinen TO, Smith JA, Dehghan A, Dupuis J, Johnson AD, Feitosa MF, Tekola-Ayele F, Chu AY, Nolte IM, Dastani Z, Morris A, Pendergrass SA, Sun YV, Ritchie MD, Vaez A, Lin H, Ligthart S, Marullo L, Rohde R, Shao Y, Ziegler MA, Im HK; Cross Consortia Pleiotropy (XC-Pleiotropy) Group; the Cohorts for Heart and; Aging Research in Genetic Epidemiology (CHARGE); the Genetic Investigation of Anthropometric Traits (GIANT) Consortium; the Global Lipids Genetics Consortium (GLGC); the Meta-Analyses of Glucose; Insulin-related traits Consortium (MAGIC); the Global BPgen (GBPG) Consortium; The ADIPOGen Consortium; the Women's Genome Health Study (WGHS); the Howard University Family Study (HUFS), Schnabel RB, Jørgensen T, Jørgensen ME, Hansen T, Pedersen O, Stolk RP, Snieder H, Hofman A, Uitterlinden AG, Franco OH, Ikram MA, **Richards JB**, Rotimi C, Wilson JG, Lange L, Ganesh SK, Nalls M, Rasmussen-Torvik LJ, Pankow JS, Coresh J, Tang W, Linda Kao WH, Boerwinkle E, Morrison AC, Ridker PM, Becker DM, Rotter JI, Kardina SL, Loos RJ, Larson MG, Hsu YH, Province MA, Tracy R, Voight BF, Vaidya D, O'Donnell CJ, Benjamin EJ, Alizadeh BZ, Prokopenko I, Meigs JB, Borecki IB. Pleiotropic genes for metabolic syndrome and inflammation. **Mol Genet Metab [IF: 2.9]**. 2014 May 9 doi: 0.1016/j.ymgme.2014.04.007.

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Oriana Yu

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Michael Tamilia

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Andrew Karaplis

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--Boras-Granic K, Dann P, Vanhouten J, **Karaplis A**, Wysolmerski J. Deletion of the nuclear localization sequences and C-terminus of PTHrP impairs embryonic mammary development but also inhibits PTHrP production. *PLoS One*. 2014 May 1;9(5):e90418.

3. Academic and community engagement service outside of McGill by individual members of the unit

Members of the Division continue to serve in committees of granting agencies, 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.

SECTION III - CONFIDENTIAL INFORMATION

1. Consulting activities: None reported

Submitted by:

Mark Trifiro, MD
Chief, Division of Endocrinology