

SickKids[®]

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Toronto, Ontario M5G 1X8

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DEPARTMENT OF PAEDIATRICS
ANNUAL REPORT 2013-2014

**Our goal is to continuously evolve as one of
the world's leading academic departments of Paediatrics,
focusing on excellence in clinical, training of the next generation
of paediatric health care professionals, and the generation
of new knowledge through cutting edge research
and creative professional activities.**

– Denis Daneman, Chair/Chief of Paediatrics

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chair's report

Meredith Irwin, Marilyn Monk, Rayfel Schneider, Jeremy Friedman, Ben Vozzolo, Denis Daneman

Report of the Chair of Paediatrics and Paediatrician-in-Chief

One can only characterize the 2013-14 academic year as jam-packed:

First, the opening of the Peter Gilgan Centre for Research and Learning at SickKids in October 2013 saw the repatriation of our researchers from six different sites to the main hospital campus. The building is simply magnificent.

Second, the CEO of SickKids, Mary Jo Haddad, retired after ten highly productive years at the helm. The new CEO, Mike Apkon, is the first paediatrician to lead the hospital in its long history. He hit the ground running in January 2014 and has quickly identified the important areas in need of ongoing attention: mainly information technology and ensuring the best possible access to child health care in Ontario.

Third, we had a vigorous year of recruitment, welcoming the following new faculty:

- Alene Toulany in Adolescent Medicine
- Emilie Jean St Michel in Cardiology
- Melanie Penner in Developmental Paediatrics
- Robert Bandsma in Gastroenterology
- Sumit Gupta in Haematology Oncology
- Mathieu Lemaire and Damien Noone in Nephrology
- Noma Dhlamini in Neurology
- Sarah Schwartz in Paediatric Medicine
- Charisse Kwan, Debra Schonfield and Mark Tessaro in Paediatric Emergency Medicine

Fourth, we continued our record of success at the Decanal Promotions Committee with the following:

1. Assistant to Associate Professor:
 - a. Evdokia Anagnostou, Developmental Paediatrics
 - b. Leo Brandao, Hematology
 - c. Abha Gupta, Oncology
 - d. Cecil Hahn, Neurology
 - e. Binita Kamath, Gastroenterology/Hepatology/Nutrition
 - f. Indra Narang, Respiratory Medicine
 - g. Karel O'Brien, Neonatology
 - h. Julian Raiman, Clinical and Metabolic Genetics
 - i. Valerie Waters, Infectious Diseases

This group comprises one clinician scientist, three clinician investigators and five academic clinicians.

2. Associate to Full Professor:
 - a. Yigal Dror, Hematology
 - b. Darcy Fehlings, Developmental Paediatrics
 - c. Meredith Irwin, Oncology
 - d. Karen Leslie, Adolescent Medicine
 - e. Seema Mital, Cardiology
 - f. Rulan Parekh, Nephrology
 - g. Lisa Robinson, Nephrology
 - h. Steven Schwartz, Critical Care Medicine
 - i. Prakesh Shah, Neonatology

This group includes six clinician scientists, one each of clinician investigator, clinician educator and academic clinician.

This amounts to a perfect record of 118 faculty members submitted for review by the Decanal Promotions Committee being successful over the past 8 years. The pivotal role played by our Departmental Committee in screening candidates, and most particularly that of the Committee Chair, Dr. Melvin Freedman, cannot be over emphasized. Mel will retire in earnest in June 2015 and pass the chair of the committee to Ron Laxer. Mel has been a member of our department for over 40 years, first as Hematologist, then as research Ethics Board Chair, and finally as Departmental Promotions Committee Chair and confidante, supporter and friend of the Department Chair. Mel brings together all the skills needed to do these jobs superbly: intelligence, diligence, integrity, sensitivity, sense of humour, directness. Thank you, Mel!

New chairs in the Department of Paediatrics include:

Jill Hamilton, Endocrinology, will be the inaugural Mead Johnson Chair in Childhood Nutrition, and Stan Zlotkin, Global Child Health, the Mining4Life Chair in Mineral Metabolism.

Despite a very tough funding environment, members of our faculty have been more successful than ever in garnering research grants. In addition, with a new initiative to nurture future researchers in 2013/14 we recruited one MD PhD trainee into our residency program. In 2014/15, there were four.

Successful negotiations with the Alternate Funding Plan Branch of the Ontario Ministry of Health and Long-Term Care have led to the hiring of new faculty in Paediatric Emergency Medicine and Complex Care, and consolidation of the initiative in Palliative Care (Paediatric Advanced Care Team, PACT). A new set of requests have been submitted for the 2015/16 academic year.

Currently the Department of Paediatrics is involved in recruiting two Division Heads and reviewing a number of Divisions as their Heads reach the five year mark.

All in all, these and many other stellar achievements have made for ongoing excellence in the Department of Paediatrics. The countdown has started as The Hospital for Sick Children renews its leadership group with Surgeon-in-Chief changing at the end of 2014, Chief of Research in mid-2015, and Paediatrician-in-Chief/Chair of Paediatrics in mid-2016.

I remain awed by the accomplishments of our departmental members across all three pillars of academic paediatrics and beyond in social paediatrics and global child health. Thanks to everyone for their contributions.

Sincerely,

Denis Daneman

Future Impact

Each year we recruit a number of new faculty members, some to fill the vacancies that arise as a result of the retirement of senior faculty, some that represent new positions in our Department of Paediatrics. The yardstick is a simple one: excellence, not only in clinical care but also in medical education, research or other creative professional activities. These faculty members are all superbly well trained, either here or elsewhere, and represent not only the present, but more importantly the future of our department.

Here we profile 5 individuals recently recruited to our department: the future is secure in their hands.

Dr. Shaun Morris – Developing perinatal kit to save lives



Dr. Shaun Morris earned his MD at Queen's University and a Master's of Public Health at Johns Hopkins University in Baltimore, MD. He began clinical training at SickKids in 2003 and joined the faculty in 2012 after completing a Pediatrician Scientist Training Program

fellowship in global child health research. He is a Clinician Scientist in Infectious Diseases, Scientist and Principal Investigator at the Centre for Global Child Health, and Scientist-Track Investigator in Child Health Evaluative Sciences.

He is Assistant Professor of Paediatrics at U of T and Adjunct Professor at the Dalla Lana School of Public Health, and he is Honorary Scientist, Centre for Global Health Research at St. Michael's Hospital.

Dr. Morris' current research focuses on global health epidemiology, including newborn and childhood mortality, tropical infectious diseases, and vaccine preventable diseases. In 2013, he received the Grand Challenges Canada Stars in Global Health grant for developing an integrated perinatal kit aimed at saving newborn lives.

"One of the biggest global health problems is how many newborns die, very often from preventable causes. Women and families have hopes and dreams tied up in their pregnancy. It's not acceptable," says Dr. Morris, who has been using the kit in studies he's conducting in Pakistan and Kenya. "I hope to show that this cost-effective kit works, and then turn it into a sustainable product that will go a long way in improving health outcomes for women and children in low income countries."

Dr. Nomazulu Dlamini – Helping children who have had a stroke



Dr. Nomazulu Dlamini first joined SickKids in 2008 as a Clinical Research Fellow in the Stroke Program. Prior to this she had earned her medical degree at University College of London and completed her training in paediatrics and paediatric neurology. She returned

to SickKids in September 2014 as an Assistant Professor and Staff Physician in Neurology and Stroke.

While a Staff Neurologist at Evelina London Children's Hospital, she specialized in stroke, neuromuscular diseases and complex neurofibromatosis, helping to run the regional and national services.

It wasn't until Dr. Dlamini was a senior trainee that she learned about the impact of childhood stroke on the individual and society, and that society's understanding of the problem remained limited. This has inspired her journey.

"Stroke is one of the top 10 causes of death in childhood. It must be managed better," says Dr. Dlamini. "At SickKids, I'm able to focus on stroke, which is my real burning interest. I will be part of the SickKids Stroke Imaging Laboratory Program, which will undertake ambitious new research and serve as the global hub for imaging research on the causes, diagnosis and treatment of paediatric stroke. Ultimately I will be involved in world-class research with an aim to provide the best possible care. These are exciting times."

Dr. Mathieu Lemaire – Translating knowledge for global benefit



Dr. Mathieu Lemaire earned his master's and medical degrees at McGill University and joined SickKids full-time in August 2014, serving as staff nephrologist, scientist-track investigator, and assistant professor at U of T's Faculty of Medicine.

In 2007, while a SickKids paediatric resident, he received a Norman Saunders Award for Excellence in Clinical Paediatrics. Following his training in nephrology, also at SickKids, he completed a PhD in Investigative Medicine (Genetics) at Yale, focusing on the genetics of rare paediatric kidney diseases.

As a clinician and researcher, he aims to have his scientific work translated to clinical care.

"For me, the greatest achievement would be to have an impact on patients' clinical care based on my research. That would be incredibly fulfilling," he says. "I believe that technological advances will help shorten the paths from hypothesis to pathophysiology, and from pathophysiology to therapy, thus benefiting our patients in a much shorter timeframe."

"Now that genome sequencing is rapidly becoming cheaper and more reliable, the challenge is to show how incorporation of genomic data into clinical care will impact patient outcomes concretely," he says. "Once this is established, and it may take a while before we get there, it will be our duty to make sure paediatric patients around the world benefit from that."

Dr. Michelle Science – Preventing and Controlling infection transmission



Dr. Michelle Science is staff physician, Infectious Diseases, medical advisor, Infection Prevention and Control, and medical co-lead, Antimicrobial Stewardship Program. She earned her MD and Master's degree in Health Research Methodology (Clinical

Epidemiology) and completed the Clinician Investigator Program at McMaster University. Before joining SickKids full-time in 2012, she received tropical medicine training in Lima, Peru, following a paediatric residency and fellowship (Infectious Diseases) at SickKids.

As Medical Advisor for Infection Prevention and Control, Dr. Science is a key player in ensuring the proper policies and procedures are in place to stop and control the transmission of infection within the hospital. In the past year, she played a pivotal role in developing protocols in the event of a suspected Ebola case at SickKids.

Safety remains an important issue for Dr. Science. "I look forward to optimizing patient safety and outcomes by playing a central role as we strive to be leaders and innovators in paediatric infection prevention and control and antimicrobial stewardship."

Her other areas of interest include antimicrobial stewardship and the impact of *Clostridium difficile* infection in children. This year she undertook a quality improvement project in the NICU to understand the burden of *C. difficile* colonization in infants.

Dr. Alène Toulany – Communication in quality and adolescent medicine



What do adolescent medicine and quality improvement have in common? Good communication, says Dr. Alène Toulany, staff physician in adolescent medicine. A native of Halifax, she earned her MD at Dalhousie University in 2006. For the next three years, she was a paediatric

resident at SickKids and in 2009, chief paediatric resident. In addition to her certification in paediatrics and adolescent medicine, Dr. Toulany completed a VA National Quality Scholars Fellowship in 2013 at Dartmouth College's Institute for Health Policy & Clinical Practice and U of T's Centre for Quality Improvement and Patient Safety, and she is working on a master's degree in Health Services Research at U of T's Institute for Health Policy, Management and Evaluation.

Dr. Toulany chose paediatrics because she enjoys working with children and youth – the oldest of four, she grew up being a mentor for her younger siblings. Adolescent medicine was also a natural step, because much of the work in this field is about motivating the patient to make changes. The leap to quality followed the same path: The more she understood about the psychosocial issues of her patients and their families, the better she became at patient communication. She knew that in order to affect change, individuals have to be motivated – and with that knowledge she turned her attention to quality improvement.

"The essence of patient safety and quality improvement work is good communication and strong relationships. Change is personal and without strong relationships, doing the right thing for the right patient at the right time becomes more difficult. We teach this in our Paediatric Co-Learning Curriculum in Quality Improvement for faculty and trainees."



adolescent medicine

Left to right: Tania Turrini, Melanie Li, Sarah Kearney, Cathleen Steinegger

Divisional Overview

The Division of Adolescent Medicine at The Hospital for Sick Children is an interprofessional group committed to promoting and providing excellence in adolescent health care, and collaborating with local, national and international communities in the areas of patient care, training, education and research.

Some of the exciting events of the year included: a retreat that resulted in a Leadership Charter and many “Wildly Important Goals”; the launch of the Transgender Youth Clinic with Endocrinology; the publication of a report with the Canadian Foundation for Health Improvement on transition in patients with complex care needs; and the development of a longitudinal fellowship rotation in the Young Families’ Program and; new involvement with STOMP and the Paediatric Sleep Disorders Program. Members of the Division are involved in creating apps and websites for young people with diabetes, lupus solid organ transplant.

The Division has 5 programs, The Young Families Program (YFP); The Substance Abuse Program; The Good 2 Go Transition Program (G2G); The Eating Disorders Program and the SickKids Interprofessional Team for Youth (SITY) that continue to be active in clinical care, education, research, resource creation and international collaborations.

The Young Families’ Program. The Young Families Program continues to host a wide range of interprofessional education trainees from a variety of disciplines including medicine, nursing, and midwifery social work and has expanded the role for social paediatrics students into its clinical, research and educational programs. Research and QI projects have increased and include work in the areas of maternal and child outcomes, contraception, literacy and evidence-based health services for adolescent parents. Enhancing and strengthening community networks and affiliations is an active strategic focus. The program is developing an initiative that will offer evidence based parenting interventions, and increased collaboration with the Fraser Mustard institute.

The Substance Abuse Program provides continuum of care from outpatient to day treatment, incorporating best practices in clinical care, while providing learning for a variety of health professional trainees. The program also provides outreach to schools, group homes and youth-serving agencies across the GTA. A new partnership with LOFT Community Services and the Centre for Addiction and Mental Health (CAMH) has led to the creation of an Evening Program for Transitional Age Youth.

Good 2 Go Transition Program (Good 2 Go) continues to support SickKids staff and members of the paediatric and adult healthcare community in servicing the needs of youth in healthcare transitions. Highlights from the past year include successful response to a call from the MOHLTC to better understand the transition needs of youth with complex care needs through a partnership with Canadian Foundation for Healthcare Improvement. The past year has stressed our role as consultants/experts in transition at the provincial and national level, including recent examples as working group members on transition initiatives with Canadian Association of Paediatric Health Centres, the Child Youth Advisory Table of the Toronto Central LHIN and Provincial Council for Maternal and Child Health Child Youth Advisory Committee. Current research is in the areas of transition in eating disorders, solid organ transplant and complex care.

The Eating Disorders Program provides integrated clinical services (inpatient, day hospital, outpatient and consultation) to adolescents and their families. All aspects of the program are interdisciplinary and family-based as fits with best evidence based practice. The program continues to explore innovative treatments and their outcomes and to add to its research with studies on transition to adult care, evaluating a new refeeding protocol, and refining our treatment model for younger children with eating disorders. Educating current and new providers on best practices in eating disorders care remains a core mission of the program. Although we are not directly involved in planning or running the Child and Adolescent Eating Disorders Unit at Ontario Shores Centre

for Mental Health Sciences we lobbied for many years to have an alternative to sending patients who needed residential care to the United States and expect to have close ties with this program.

SITY continues to expand its role in providing adolescent health care for young people with chronic illness or disability, and has added regular clinics in haematology and spina bifida. The Transgender Youth Clinic is operated jointly by Adolescent Medicine and Endocrinology twice a month. SITY is an important educational resource, providing continuity clinics for fellows and subspecialty residents and teaching about a broad range of adolescent issues. SITY continues to optimize the involvement of practitioners and trainees in a number of disciplines to role-model and deliver care in an integrated and interprofessional manner. Current research is in the areas of HPV immunization in solid organ transplantation, mHealth and eHealth.

Honours and Awards

Bonifacio, J: Winner of the 2013 Marvin Gerstein Award for Excellence in clinical Teaching. Department of Paediatrics. The Hospital for Sick Children at the University of Toronto, Toronto, Ontario, June 2013

Katzman, D: Winner of the 2014 American Pediatric Society (APS) Active Membership Award. Vancouver, British Columbia, May 2014

Publications

Galle J, Kirsh S, Kaufman M. Case Report: Anorexia Nervosa in a patient with Congenital Adrenal Hyperplasia. *Journal of Pediatrics Endocrinology and Metabolism* 2013; 26(1-2): pp 167-172.

Grewal S, Jasper K, Steinegger C, Yu E, Boachie A. Factors Associated With Successful Completion in an Adolescent-Only Day Hospital Program for Eating Disorders. *Eating Disorders: The Journal of Treatment and Prevention*. 2013. *Eating Disorders* 2014; 22(2): pp 152-162.

Leclerc A, Turrini T, Sherwood K, Katzman DK. Evaluation of a Nutrition Rehabilitation Protocol in Hospitalized Adolescents with Restrictive Eating Disorders. *Journal of Adolescent Health*. 2013 Nov 46(7): pp 751-754.

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Katzman, DK. The WHY of SAHM: 45 years later. *Journal of Adolescent Health*. 2013; 52(6): pp 798-800.

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Pinhas L, McVey G, Walker KS, Norris M, Katzman DK, Collier S. Trading Health for a Healthy Weight: The Uncharted Side of Healthy Weights Initiatives. *Journal of Eating Disorders* 2013; 21(2): pp 109-116.

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Stinson J, Kohut SA, Spiegel L, White M, Gill N, Colbourne G, Sigurdson S, Duffy KW, Tucker L, Stringer E, Hazel B, Hochman J, Reiss J, Kaufman M. A systematic review of transition readiness and transfer satisfaction measures for adolescents with chronic illness. *International Journal of Adolescent Medicine Health*. Jul 6 2013. pp 1-16.

Toulany A, Katzman D, Kaufman M, Hiraki L, Silverman E. Chicken or the egg: Anorexia nervosa and systemic lupus erythematosus in children and adolescents. *Pediatrics* 2014; 133(2): pp 447-50. doi: 10.1542/peds.2012-3048. [Epub 2014 Jan 6].

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Williams T, Kaufman M. Sexuality in Adolescence. *Pediatrics in Review* 2013; 34: pp 29-38.

Books and Chapters

Toulany A, Katzman DK. Anorexia Nervosa. in *Clinical Decision Support: Pediatrics*, edited by McMillan JM, Barrett DJ, Boney CM, Jones MD. 2013. Decision Support in Medicine, LLC. Wilmington, DE. PA

Grants and Funding

The CHAPTER Study: Congenital heart adolescents participating in transition evaluation research. Mackie A, Rempel G, Macgill-Evans J, Nicholas D, Yasui Y, Kaufman M, McCrindle B, Anthony S, Sananes Renee, Kovacs A, Oechslin E. **Heart and Stroke Foundation of Canada Grant-in-Aid.** \$358,115 CAD. January 2012-December 2014

Connecting Adolescents and Young Adults to Preventive Health Care Services. Klein JD, Santelli, JS, The Society for Adolescent Health and Medicine (Katzman DK, Ford C), American Academy of Pediatrics, American Academy of Family Physicians, American College of Obstetricians and Gynecologists **Merck Adolescent Health Consortium Grant.** \$3,100,000 USD. August 2014-August 2018

Design and initial testing of a wearable sleep sensor and mHealth intervention to promote sleep for adolescents. Stremmer R, Cafazzo J, Katzman DK, Keilty K, Maser C, Pullyenayegam E. **Canadian Institute of Health Research.** \$267,442 CAD. January 2014-September 2016

Defining competence for faculty developers. Leslie K, Baker L, Stubbs B, Panisko D, Meuser J, Walsh A, Marshall D, Lingard L, Myopoulous M. **Royal College of Physicians and Surgeons of Canada Medical Education Grant.** \$44,566 CAD. January 2012-December 2014

Effects of anorexia nervosa on peak bone mass. Klibanski A, Katzman DK (Principal Investigator at SickKids site), Misra M, Herzog D, Levitsky L, Bouxsein M, Russell M. **National Institutes of Health/CFAR Health Canada for Clinical Trials Application at SickKids site and for project at-large.** \$5,000,000.00 USD. January 2011-January 2016

Further development of the MyHealth Passport. Good 2 Go Transition Program. **John Deere Foundation.** \$50,000 CAD. January 2008-December 2013

Immunogenicity and Safety of Human Papilloma Virus Vaccine in Solid Organ Transplant Recipients. Schwartz KI, Allen U, Kaufman M, Avitzor Y, Hebert D. **Patient Safety Institute.** \$20000 CAD. January 2013-December 2014

A Mobile Phone-Based Supported Self-Management System for Adolescents with Type 1 Diabetes. Palmert M, Casselman M, Cafazzo J, Katzman DK, Leonard K. **Thrasher Research Fund.** \$396,912 USD. September 2012-August 2015

A Novel Family Based Intervention for Transition Age Youth and their Families: A Two Phase Feasibility Study. Dimitropoulous G, Colton P, Olmsted M, Kovacs A, Toulany A, Steinegger C, Kaufman M. **Ontario Mental Health Foundation.** \$110,000 CAD. January 2013-December 2016

Photovoice Street Youth Project. Bonifacio J. **Social Pediatrics Research Summer Studentship Program. The Hospital for Sick Children.** \$3,500 CAD. January 2013-December 2013

Process of Transitioning from Pediatric to Adult Eating Disorder Programs. Dimitropoulos G, Colton P, Olmsted M, Steinegger C, Kaufman M, Toulany A, Kovacs A. **Ontario Mental Health Foundation.** \$110,000 CAD. July 2013-June 2016

A Qualitative Study on the Experiences of Parents and Young Adults Regarding the Process of Transitioning from Pediatric to Adult Eating Disorder Programs. Dimitropoulos G, Colton P, Olmsted M, Steinegger C, Kaufman M, Toulany A, Kovacs A. **Allied Health Research Funding, Toronto General Hospital.** \$3000 CAD. January 2013-December 2013

A Qualitative Study to Explore the Barriers to Positive Airway Pressure in Children with Obstructive Sleep Apnea. Narang I, Toulany A, Baker A. **Paediatric Consultants, The Hospital for Sick Children.** \$9,926.28 CAD. January 2014-December 2014

Street Involved Youth Study. Bonifacio J. Keenan **Research Summer Student Program. St. Michael's Hospital.** \$2000 CAD. June 2014-August 2014

Use of Social Simulation in Asperger Adolescents. Bonifacio J. **Innovation Funds Competition – St. Michael's Hospital.** \$18,000 CAD. January 2013-December 2013

Staff

Division Head

Dr. Miriam Kaufman

Full-Time

Dr. Katherine Hick
Dr. Debra Katzman
Dr. Cathleen Steinegger
Dr. Alene Toulany

Part-Time

Dr. Joey Bonifacio
Dr. Ian Chen
Dr. Eudice Goldberg
Dr. Sarah Kearney
Dr. Rahul Saxena

Clinical Fellows

Dr. Anoud Al-Ansari
Dr. Zahra Alebraheem
Dr. Mariano Macias
Dr. Renee Morgan

Subspecialty Residents

Dr. Mariel Heller
Dr. Chana Korenblum
Dr. Allison Rodrigues
Dr. Ashley Vandermorris

Administrative Staff

Noreen Akhtar
Joy Gouldbourne
Shanita Singh
Victoria Snell

Young Families Program Database Development and Evaluation of Measureable Outcomes QI Initiative. Singh V, Thompson G, Hick K. **Department of Paediatrics, The Hospital for Sick Children SPRESS position.** \$3000 CAD. June 2014-September 2014

Young Families Program Needs Assessment QI Initiative. Guolla L, Thompson G, Hick K. **Department of Paediatrics, The Hospital for Sick Children SPRESS position.** \$3000 CAD. June 2013-September 2013



cardiology

Jennifer Russell

Divisional Overview

The Division of Cardiology at The Hospital for Sick Children was established in 1938, as one of the first dedicated units treating children with congenital heart disease. Almost 80 years later, the Division remains one of the most prestigious and productive in the world.

As an integral partner in the Labatt Family Heart Centre, it forms an important part of a multi-disciplinary and “expert model of care” team, with dedicated cardiac intensive care facilities, world-leading imaging teams, an internationally renowned interventional cardiology and electrophysiology services, and one of the largest heart function and transplant groups.

The fellowship program attracts high caliber candidates from North America and around the world.

Research and development has always been at the forefront of the activities of the Division, and the current Faculty continues to perform at the highest level. It is a long-standing member of the Paediatric Heart Network, an NIH funded network of centres of excellence, houses the Congenital Heart Surgeons Society database, and leads the world in the clinical epidemiology and outcomes analysis of congenital heart disease. At a mechanistic level, our world leading imaging research spans all disciplines from CT, MRI, to echocardiography and fetal medicine, alongside this, the heart function and transplant research activities have made a world impact. Working closely with our surgical colleagues, the interventional cardiology program has been at the leading edge of the field for well over 20 years, and continues to develop novel interventions, hybrid procedures, and our multi-disciplinary imaging faculty is unsurpassed in cardiovascular functional research.

In summary, the Division, working in close collaboration with colleagues from surgery, anesthesia, intensive care, and all the specialties involved in the care of children with heart disease, goes from strength to strength in each of the clinical, educational, and research domains.

Honors and Awards

Friedberg, M: Junior Faculty Research Award Winner, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Grosse-Wortmann, L: High Score Abstract. Evaluation of knowledge-based reconstruction for magnetic resonance volumetry of the right ventricle after arterial switch operation for transposition of the great arteries. EuroEcho Imaging 2013, Istanbul, Turkey, December 13, 2013

Jaeggi, E: 2013 Earl J. Brewer Research Award by the American Academy of Pediatrics, Section of Rheumatology. “The effects of maternal anti-malarial intake during pregnancy on the risk of neonatal lupus”. Oral presentation. San Diego, California, US, October 2013

Jaeggi, E: Sjogren’s Syndrome Foundation Outstanding Abstract Recognition Award. “The effects of maternal anti-malarial intake during pregnancy on the risk of neonatal lupus”. Oral presentation. San Diego, California, US, October 2013

Hamilton, R: Best Manipulation Paper Award – Finalist for paper entitled “Automated microrobotic characterization of cell-cell communication”. IEEE International Conference on Robotics and Automation – ICRA 2014, Hong Kong, China, 31 May -7 June 2014

Hamilton, R: Best Student Paper Award for the paper entitled “Automated microrobotic characterization of cell-cell communication.” IEEE International Conference on Robotics and Automation – ICRA 2014, Hong Kong, China, 31 May-7 June 2014

Mertens, L: Certificate of Excellence in Reviewing, Awarded by Elsevier and the Editors of the Journal of the American Society of Echocardiography, Morrisville, North Carolina, June 19, 2014

Mertens L: Nominated as Feigenbaum Lecturer for the American Society of Echocardiography (ASE) Scientific Sessions in Portland, Portland, Oregon, June 2014

Mertens, L: Young Investigators Award. Grotenhuis H, Ruijsink B, Chetan D, Dragulescu A, Friedberg MK, Kotani Y, Caldarone CA, Honjo O, Mertens L. The impact of the stage I palliative strategy on echocardiographic changes in cardiac size and function in children with Hypoplastic Left Heart Syndrome. A comparison between the Norwood and the Hybrid approach. Abstract. 48th Annual Meeting of the Association for European Paediatric and Congenital Cardiology. Helsinki, Finland, May 21-24, 2014.

Mital, S: Heart and Stroke Foundation of Ontario Chair in Cardiovascular Science, Toronto, Ontario, 2014-2019

Publications

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Books and Chapters

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Grants and Funding

A fetal lamb model of hypoplastic left heart syndrome. Chaturvedi R, Devrijer B, Jaeggi E. **Labatt Family Heart Centre**. \$57,800 CAD. April 1-2011-May 31-2016

A pharmacogenetic trial of tacrolimus after pediatric transplantation. Mital S. **SickKids Transplant Centre Catalyst Grant**. \$150,000 CAD. February 1-2012-March 31-2014

A proof of principal randomized controlled trial of chronic remote ischemic conditioning to modify post-MI remodeling. Redington AN, Overgaard C, Dzavik V, Farkouh M, Crean A. **Canadian Institute of Health Research**. \$240,371 CAD. March 1-2012-February 28-2014

A randomized controlled trial of hybrid and Norwood surgical strategies for single ventricle congenital heart disease. Caldarone C, McCrindle BW. **Heart and Stroke Foundation of Ontario**. \$228,234 CAD. April 1-2012-March 31-2015

Abnormal brain development in newborns with congenital heart disease. Miller SP, Campbell AI, Grunau RE, Hahn CDA, Hickey EJ, Macgowan CK, Poskitt KJ, Seed MTM, Synes AR. **Canadian Institute of Health Research**. \$79,8370 CAD. April 1-2009-March 31-2014

Adolescent type I diabetes cardio renal intervention trial (AddIT)-Canada Site: (1) Randomized controlled trial; (2) Follow-up of non-randomized low risk subjects; (3) Ancillary study-urinary proteomics in adolescents with type 1 diabetes. Daneman D, Mahmud FH, Sochett EB, Curtis JR, Moineddin R, Bradley TJ, Cherney DZI, Reich HN, Scholey JW. **Juvenile Diabetes Research Foundation**. \$3,657,088 CAD. March 1-2011-February 29-2016

Advanced MRI methods for placental dysfunction and fetal distress. Sled J, Macgowan C, Seed M, Kingdom J, Adamson L. **CHRP Canadian Institutes of Health Research (CIHR)**. \$631,718 CAD. January 1-2013-December 31-2016

Beta blockers for treatment of pulmonary arterial hypertension in children. Friedberg MK, Humpl T. **The Hospital for Sick Children Labatt Family Heart Centre Innovation Fund**. \$23,297 CAD April 1-2013-March 30-2015

Biologic determinants of right ventricular remodeling in tetralogy of Fallot. Mital S, Redington AN, McCrindle B, Mertens L. **Heart & Stroke Foundation of Canada**. \$150,634 CAD. July 1-2011-June 30-2012

Can sustained post-operative biventricular pacing improve hemodynamics in children with electro-mechanical dyssynchrony after repair of congenital heart disease? Friedberg MK, Stephenson E, Van Arsdell G, Schwartz S. **Heart and Stroke Foundation of Ontario Grant In Aid**. \$172,481 CAD. July 1-2012-June 30-2014

Canadian National Transplant Research Program: Increasing donation and improving transplantation outcomes. Mital S, West LJ, Hebert M-J. **CIHR Program Grant in Transplantation Research**. \$13,800,000 CAD. April 1-2013 – March 30-2015

Cardiac antibodies as a mechanism for right ventricular hypertrophy in epidermolysis bullosa. Sajic D, Hamilton R. **The Canadian Dermatology Foundation**. \$5000 CAD. September 1-2013-May 31-2014

Cardiovascular biomarker discovery in disease and development through predictive precision proteomics (CBD3P3). Keller G, Liu P, Mital S. **Ministry of Research and Innovation Ontario Research Fund-Global Leadership Round in Genomics & Life Sciences Competition (GL2 Competition)**. \$6,641,774 CAD. May 4-2009-August 31-2014

CHRS Cardiac implantable electrical device surveillance system (CDSS); A pilot study. Parkash R, Simpson C, Nery P, Sterns L, Tang A, Exner D, Thibault B, Crystal E, Connors S, Champagne J, Philippon F, Tung S, Krahn A, Cameron D, Mangat I, Verma A, Wolfe K, Essebag V, Kus T, Ayala-Paredes F, Davies T, Sanatani S, Gow R, Coutu B, Sivakumaran S, Stephenson E, Yee R. **Heart and Stroke Foundation**. \$161,201 CAD. July 1-2013 – June 30-2014

CIHR Emerging Team in ARVC Research. Hamilton R. **Canadian Institute of Health Research (CIHR)**. \$2,499,925 CAD. December 1-2009-November 30-2014

Clinical Assessment of Thrombosis in Children and Heart surgery: The CATCH study. McCrindle B, Mital S. CIHR Operating Grant. \$1,514,330 CAD. October 1-2010 – September 30-2015

Congenital Heart Block International Research Network (CIRN). Hamilton R, Hornberger L, Silverman E, Jaeggi E. **Canadian Institute of Health Research (CIHR)**. \$311,172 CAD. Jun 1-2012-May 31-2015

Creating a fetal lamb model of hypoplastic left heart syndrome. Chaturvedi RR, Jaeggi ET, Keunen H, Ryan G, de Vrijer B. **Labatt Family Heart Centre Innovation Fund**. \$37,490 CAD. June 1-2011-May 31-2015

CTOT-C (Clinical Trials in Organ Transplantation in Children) U01AI104336-01: Chronic graft dysfunction: Interplay of allo- and autoantibodies and nonadherence. Webber S, Dipchand AI, Blume E, Canter C, Naftel D, Hsu D. **National Institutes of Health**. \$5,205,958 USD. July 1-2013-July 31-2018

Determinants of disease progression and recovery in pediatric heart failure. Kantor P, Mertens L. **Heart and Stroke Foundation of Ontario.** \$400,000 CAD. July 1-2012-June 30-2015

Development of myocardial T1 mapping in children. Grosse-Wortmann L. **Siemens Medical Solutions.** \$25,000 CAD. November 1-2013-December 1-2014

Early detection and neurodevelopmental outcome in late onset intrauterine growth restriction. Seed M, Jaeggi E, Miller S, Kingdom J, MacGowan C, Yoo SJ, Kelly E, Blaser S, McCrindle B. **SickKids Foundation/CIHR new investigator.** \$298,390 CAD. October 1-2013-September 30-2016

Early identification of cardiac dysfunction in obese adolescents: mechanisms and modulation. Banks L, McCrindle B, Wells G, Mertens L, Seed M. **CIHR – Bridge funding – Institute of Respiratory and Circulatory Health.** \$100,000 CAD. April 1-2013-March 28-2014

Effect of a pilot healthy lifestyle program on obesity prevention in overweight adolescents with dyslipidemia: a 3-arm randomized controlled clinical trial. McCrindle BW, Wong H, Chahal N, Manlhiot M. **Institute Danone Grant-in-Aid Program.** \$50,000 CAD. October 1-2010-October 31-2011 \$135,000 (3 years to 2014)

EMPOWER: Enhancing breast milk production with domperidone in mothers of preterm neonates. Assessment of infant electrocardiograms to determine the presence of Q-Tc interval prolongation and cardiac arrhythmias for the EMPOWER Trial. Asztalos E, Campbell-Yeo M, Da O, Nield LE. **Sunnybrook Research Institute Funding, Canadian Institute for Health Research.** \$999,454 CAD. January 1-2013-September 30-2016

Exome sequencing for identification of rare genetic variants and novel genes contributing to Brugada Syndrome. **Hamilton R. Rare Diseases Foundation and the BC Children's Hospital Foundation (BCCNF).** \$3500 CAD. September 1-2013-September 30-2014

Exome sequencing for RV remodeling after tetralogy of Fallot repair. Manickaraj AK, Mital S. **Heart and Stroke Foundation of Canada Research Fellowship Award.** \$83,000 CAD. July 1-2013-June 30-2015

Exome sequencing to identify the gene underlying Alveolar Capillary Dysplasia a rare cause of pulmonary hypertension lethal to infants. Hamilton R. **Rare Diseases Foundation and the BC Children's Hospital Foundation (BCCNF).** \$3500 CAD. May 1-2012-September 30-2014

Glucose homeostasis and cardiac output after paediatric cardiac surgery. Schwartz S, McCrindle BW, Mital S, Van Arsdell G. **Heart and Stroke Foundation of Ontario.** \$195,019 CAD. July 1-2011-June 30-2015

HOLD IT: Health Outcomes of Low Vitamin D in Toddlers: A TARGet Kids! Longitudinal Study. Maguire J, McCrindle BW, Birken C, O'Connor D, Jiang D, Parkin D, Mamdani M, Vieth R. **Canadian Institutes of Health Research.** \$140,796 CAD. August 1-2010-July 31-2011 (\$563,184 CAD 4 years to 2014).

Identification of genes predisposing to familial arrhythmia syndromes. Hamilton R. **Rare Diseases Foundation and the BC Children's Hospital Foundation (BCCNF).** \$3500 CAD. September 1-2013-September 30-2014

iPS cells to model vascular disease in patients with Williams-Beuren syndrome. Mital S, Ellis J. **CIHR Operating Grant (MOP 126146).** \$640,182 CAD. January 1-2013-March 31-2018

Kawasaki Disease: On our way to unraveling the pathogenesis. Yeung R, McCrindle BW, Siminovich K. **Canadian Institutes of Health Research.** \$192,548 CAD. June 1-2011-June 30-2012 (\$798,779 CAD 5 years to 2017)

Large diameter advanta V12 covered stent trial for coarctation of the aorta. Benson L, Chaturvedi R, Kyong-Jin L, Golding F, Eastaugh L. **Atrium Medical Corporation.** \$4,550 USD per patient over 5 yrs. Aug 1-2009-Sep 30-2014

Late functional status of a cohort of survivors with critical aortic stenosis: A Congenital Heart Surgeons Society Study. McCrindle BW, Poynter J, Sananes R, Kovacs A. **Children's Heart Foundation.** \$196,790 CAD. April 1-2013 – March 31-2015

Mechanistic Interrogation of bicuspid aortic valve associated aortopathy. Mital S, Loeys B, Dietz H. **Leducq Foundation Transatlantic Network of Excellence.** \$5,998,895 CAD. January 1-2013-December 31-2017

MRI assessment of the impact of fetal brain oxygenation on brain development in congenital heart disease. Seed M, Jaeggi E, Miller S, Kingdom J, MacGowan C, Yoo SJ, Kelly E, Blaser S, McCrindle B. **Pediatric Heart Network Scholar Awards Funding For Mentored Research.** \$75,000 CAD. June 1-2013-May 31-2014

Novel approaches to the prediction, diagnosis and treatment of cardiac late effects in survivors of childhood cancer. Nathan P, Mital S. **Canadian Institutes for Health Research Team Grant.** \$2,797,749 CAD. October 1-2011-September 30-2016

Ontario initiative in personalized stem cell medicine. Rossant J, Mital S. **Canadian Foundation of Innovation.** \$9,932,011 CAD. April 1-2008-April 30-2014

Patterns and clinical significance of electro-mechanical dyssynchrony in pediatric dilated cardiomyopathy. Friedberg, MK. **Children's Cardiomyopathy Foundation.** \$44,550 CAD. February 1-2012-September 30-2013

Placental insufficiency and aortic isthmus flow (PIAF: Pan Canadian Study). Fournon JC, Jaeggi E. **Canadian Institute of Health Research (CIHR).** \$907,333 CAD. August 1-2009-July 31-2014

Primary EBV infection in the Immunosuppressed setting of organ transplantation: determinants of virus-host interaction. Allen U, Beyene J, Dipchand A, Grunebaum E, Hebert D, Husain S, Mazulli T, Ng V, Read S, Robinson J, Tellier R, Weitzman S. **Canadian Institutes of Health Research.** \$509,125 CAD. July 1-2010 – July 31-2014

PROMOTE: Preschoolers at risk – obesity trajectories and cardiometabolic factors: towards early identification. Birken C, McCrindle BW, Adeli K, Hamilton J, Hanley A, Lebovic G, Maguire J, Mamdani M, Parkin P, Tremblay M. **Canadian Institutes of Health Research.** \$655,640 CAD. July 1-2012-June 30-2016

Prospective cohort study of adults after tetralogy of Fallot: a Canada-wide registry. Wald R, Redington AN, Benson L, Caldarone C, McCrindle B, Farkouh, Oechslin E, Silversides C, Vonder Muhll I, Grewal J, Nadeem N, Siu S, Therrien J. **Canadian Institute of Heart Research.** \$771,662 CAD. March 1-2012-February 28-2015

Quantification of diffuse myocardial fibrosis in congenital and acquired heart disease. Grosse-Wortmann L. **Labatt Family Heart Centre Innovation Funds.** \$23,000 CAD. March 21-2013-March 20-2015

RSV immunoprophylaxis in children with congenital heart disease. Lee K-J, Slater N. **Abbott Industries.** \$113,300 CAD. July 1-2013-June 30-2014

Stenting of the fetal venous duct. Chaturvedi R, DeVrijer B, Jaeggi E. **Innovation Grant, Labatt Family Heart Centre.** \$21,850 CAD. June 1-2013-May 31-2015

The CHAPTER Study: Congenital Heart Adolescents Participating in Transition Evaluation Research. Mackie A, McCrindle BW, Kaufman M, Anthony S, Oeschlin E, Sananes R, Kovacs A, Rempel G, Magill-Evans J, Nicholas D, Yasui U, Robert C, Rankin K, Manlihot C. **Heart and Stroke Foundation. A multi-provincial Grant-in-Aid.** \$358,115 CAD. July 1-2012-June 30-2015

The CORRELATE Study: Canadian Outcomes Registry Late After Tetralogy of Fallot Repair. Wald R, McCrindle BW, Farkouh M, Caldarone C, Cavaller-Garrido T, Grewa J, Hancock-Friesen C, Human D, Kovacs A, Lebovic G, Nadeem S, Redington A, Silversides C, Tham E, Therrien J, Vonder Muhl E, Wintersperger B. **Canadian Institutes of Health Research.** \$533,085 CAD. July 1-2012-June 30-2015

The role of miR-144 in the cardioprotection associated with remote pre-conditioning. Redington AN. **Canadian Institute of Health Research.** \$427,674 CAD. March 1-2014-February 28-2017

Thromboprophylaxis before Fontan for neonates and infants with single ventricle physiology. McCrindle B, Mital S, Schwartz S. **NIH/NLHBI Pediatric Heart Network (1U10HL109777-1).** \$7,518,965 CAD. September 1-2011-June 30-2016

TLR4 signaling in acute and chronic responses to remote ischemic conditioning. Redington AN, Rohaila S. **Canadian Institute of Health Research.** \$360,099 CAD. March 1-2013-February 28-2016

Towards a better understanding of Kawasaki disease. Yeung R, McCrindle BW, Siminovitch K. **Canadian Institutes of Health Research.** \$196,935 CAD. July 1-2011 – June 30-2012 (\$792,717 CAD. 5 years to 2017)

Trial of beta blocker therapy (Atenolol) vs. angiotensin II receptor blocker therapy (Losartan) in individuals with Marfan syndrome. Lacro RV, Dietz HC, McCrindle BW, Bradley TJ. **National Institutes of Health/National Heart, Lung and Blood Institute.** \$1,619,555 CAD. September 1-2011-June 30-2016

Vascular smooth muscle differentiation from patient iPS cells: development of a drug screening platform. Ellis J. **SickKids Stem Cell Innovation Grant.** \$56,000 CAD. January 1-2013-December 31-2013

Staff

Division Head

Dr. Andrew Redington

Full-Time

Dr. Lee Benson

Dr. Tim Bradley

Dr. Rajiv Chaturvedi

Dr. Anne Dipchand

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clinical and metabolic genetics

Andreas Schulze, Saadet Mahmutoglu, Roberto Mendoza-Londono

Divisional Overview

Through collaborations with the Centre for Genetic Medicine, Department of Paediatric Laboratory Medicine, and The Centre for Applied Genomics, the Division continues planning efforts to transform children's health through individualized medicine. The effectiveness of genomic information in tailoring interventions and, ultimately improving health outcomes for children remains our greatest challenge. To address these rapidly emerging issues in genomic medicine, the Division has taken a leadership role in assessing the organizational needs for education as well as planning for a clinical service model that will support the new era of modern medicine.

This has been achieved in part through clinical leadership developing clinical pathways and processes building on the new knowledge from Next Generation Sequencing. Learnings from the whole genome sequencing of over 100 patients have resulted in the development of processes to disseminate this information with a goal to create clinical champions across the organization. Preliminary assessment and planning has been completed this year to build education tools that will be shared both internally and externally to build increased capacity in genomic knowledge while maintaining a leadership role in genomic medicine. Through the completion of an organizational clinical needs assessment for genomic medicine this year, findings from this assessment has resulted in a 3 year educational plan that will guide our knowledge transfer activities to ensure capacity building continues in genomic medicine.

Dr. Julian Raiman received a promotion to the rank of Associate Professor. The year also brought many successes for many trainees, including Dr. Maian Roifman, who was recognized as Winner of the 26th Annual National Pediatric Resident and Fellow Research Competition (Fellow Category), First Prize, Senior Trainee in Basic Science, Department of Paediatrics Research Day, Third Prize, Senior Trainee in Clinical Science, Department of Paediatrics Research Day, just to name a few.

The Division of Clinical and Metabolic Genetics has led very important teaching initiatives and is a host to a variety of training programs in medical genetics. The Royal College of Physicians and Surgeons-certified residency program in Medical Genetics and the Canadian College of Medical Geneticists-certified clinical fellowship programs in Medical and Biochemical genetics are the largest in Canada. This year, Dr. Melissa Carter became the Deputy Program Director for our training program. The Division is also home to the MSc Program in Genetic Counselling. Through its links to the Research Institute, the genetics centre and the Department of Paediatric Laboratory Medicine, the Division is actively involved in the training of scientists and physicians that work together translating new discoveries into clinical practice and realizing the ideal of individualized genomic medicine.

In May, the 22q11 Deletion Syndrome Clinic held their fourth annual International 22q at the Zoo Awareness Day at the Toronto Zoo for patients, families and health professionals. This year, the clinic also collaborated with clinic parents to offer a day-long educational workshop in conjunction with the Zoo event. This two-day event was attended by over 200 people, and offered workshops for parents and youth alike.

The 22nd annual symposium "New Developments in Prenatal Diagnosis and Medical Genetics" was held on May 14, 2014. For 22 years this symposium provides updated information on the breakthroughs in prenatal diagnosis and medical genetics. There were more than 200 attendees including medical geneticists, genetic counsellors, pediatricians, obstetricians, midwives and family physicians and evaluations from attendees were excellent.

The first interdisciplinary genodermatosis clinic in Canada started at SickKids just over a year ago. The clinic reviews patients affected by complex genetic skin disease, facilitating assessment, genetic testing and counseling as well as providing management advice on the same day. The clinic has seen 35 children in its first year, and provides an excellent learning opportunity for trainees as well as fostering collaborations

between the genetics and dermatology department. The clinic is staffed by Drs. Kannu, Pope, and Lara-Corales and supported by Michelle Lee, Dermatology Nurse.

After 2 years of preparation, the Down syndrome clinic is scheduled to open in November 2014. At this stage, the clinic will serve children with Down syndrome from birth to 3 years of age and will consist of a coordinator, a pediatrician, a Developmental pediatrician and a medical geneticist. The clinic will collaborate with the Holland-Bloorview center as well as with Surrey place center and will provide assessment, coordinated referral to other centers and genetic counselling.

The Thirteenth Annual Starbucks Clinical Research Summer Students Competition were awarded to Cheryl Shuman and Dr. Robin Hayeems (Would you want to know? A study of the ethical issues raised by Whole Genome Sequencing); Dr. Rosanna Weksberg (Genetic and Epigenetic Determinants of Syndromic Intellectual Disability); and Laura Nagy and Dr. Julian Raiman (Frequency of monitoring and clinical outcomes in maple syrup urine disease: a retrospective chart review); Dr. Melissa Carter (Delineation of Clinical Features of Individuals with Microduplication 22q11.2: A Questionnaire); Dr. Julian Raiman (Retrospective Study of Bone Health in Gaucher Disease at The Hospital for Sick Children (SickKids) and Mount Sinai Hospital (MSH)); Dr. Saadet Mahmutoglu (Retrospective review of patients with myoclonic epilepsy to generate a database: first steps to identify underlying aetiology); Dr. Peter Kannu and Ms. Andrea Shugar (Prevalence of Autism Spectrum Disorder (ASD) in Neurofibromatosis Type 1 (NF1) Patients and Implications for Screening Policies); and Ms. Sarah Herd and Ms. Laura Burr (Dietary Treatment with a High Medium-Chain Triglyceride Formula in Early Life and Nutritional Status of Children with Long Chain Fatty Acid Oxidation Defects).

MSc program in Genetic Counselling-The MSc program in Genetic Counselling at the University of Toronto celebrated the graduation of the 15th class.

Honors and Awards

Bowdin, S: Winner of Margaret W. Thompson Award in recognition of teaching excellence, Division of Clinical and Metabolic Genetics, The Hospital for Sick Children, Toronto, Ontario, June 2014

Mendoza-Londono, R: Winner of Margaret W. Thompson Award – Excellence in Teaching, Division of Clinical and Metabolic Genetics, The Hospital for Sick Children, Toronto, Ontario, July 2013

Meyn, S: Winner of the Marie Lambert Lectureship, Paediatric Cancer Genetics in the Era of Genomic Medicine, Association des Médecins Généticiens du Québec Annual Conference, Montreal, Quebec, May 2014

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Books and Chapters

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Grants and Funding

Aquaporins: Essential proteins regulating chondrocytes in osteoarthrists. Kannu P, Alman B. **The Arthritis Society**. \$100,000 CAD. Jan 1-2014 – January 31-2017

Cellular and molecular mechanisms of skeletal muscle homeostasis during hibernation. Cohn RD. **Natural Sciences and Engineering Research Council of Canada**. \$265,000 CAD. April 3 2014 – April 2019

Childhood Cerebral Palsy Inegrated Discovery Network. Fehlings D, deVeber G, Carter M, Fehlings M, Menon R, Rosenbaum P, Scherer S. **Ontario Brain Institute**. Not known. Aug 1-2013 – Jul 31-2018

Clinical and radiological investigation of cerebellar atrophy in childhood. Al-Maawali A, Yoon G. **Rare Diseases Foundation Micro-grant**. \$3,500 CAD. 2012 – 2013

Clinical Genetic Testing for Autosomal Recessive Hereditary Spastic Paraplegia. Ray PN, Yoon G, Baskin B. **NIH Office of Rare Diseases Research Collaboration Education and Test Translation Program**. \$197,000 US. 2010 – 2015

Co-clinical Trials in Mice and Humans in Autism. Anagnostou A, Lerch J, Foster J, Greenberg B, Weksberg R, Scherer S, Bennett T, Nicolson R. **Azrieli Foundation/Brain Canada**. \$2,497,761 CAD. Apr-1-2014-May-1-2019

Common pathways of human DNA double strand break repair and telomere maintenance. Meyn SM. **Canadian Cancer Society Research Institute**. \$614,385 CAD. July 1-2009 – June 30-2014

Computerized Patient Phenotyping to Connect Canadian Clinical Genetics Clinics. Brudno M, Bowdin S, Boycott K, Chitayat D. **Canadian Institutes of Health Research**. \$423,000 CAD. April 1-2013 – March 31-2014

Cooperative Multi-Center Program for Research and Treatment of Autism. Roberts SW, Loh A, Roberts W, Anagnostou E, Marcon M, Weiss S, Brian J, Feigenbaum A, Schulze A, Logan W, Chitayat D, Weksberg R, Green P, Weiss J, Mitchell S, Berall G, Bradley E, Freeman N, Stinson J, Ornstein M, Atkinson A, Goldfarb C, Flanagan J, Superina D, Jiminez E, Jones Stokreef N, Orsino A, Isaacs B, Handley Derry M. **Autism Treatment Network**. \$420,000 US. January 1-2011 – December 31-2013

Determining the genetic etiologies of stillbirth via WES-based analysis. Meyn MS, Stavropoulos DM, Chitayat D, Cholng K, Shannon P, Keating S, Kolomietz E, and Maire G. **McLaughlin Centre, Operating Grant**. \$40,000 CAD. June 1-2014-May 3-2015

Effects of Creatine Supplementation on Muscle Pathophysiology in Children with Dermatomyositis. Co- Inv. (PI-Dr. Feldman). **Rare Disease Foundation**. \$3,500 CAD. May 2013-April 2015

Emerging Team to identify and characterize novel and existing Hereditary Spastic Paraplegia (HSP) disease genes. Rouleau GA, Bolduc FV, Boycott KM, Drapeau P, Dupré N, Parboosingh J, Parker A, Ray PN, Suchowersky O, Vande Velde C, Yoon G. **Canadian Institutes of Health Research.** \$499,744 CAD. 2012-2017

Exome sequencing to identify disease modifying mutations in a cohort of patients with cardiomyopathy and right-sided congenital heart disease. Bowdin S, Greenway S, Shimizu M, Mital S, Redington A, Kantor P. **Labatt Family Heart Centre Innovation Fund, The Hospital for Sick Children, Foundation.** \$30,000 CAD. February 2011 – February 2014

Genetic and Epigenetic Determinants of Syndromic Intellectual Disability. Weksberg, R, Chitayat D, Ray P. **Canadian Institutes of Health Research.** \$750,400 CAD. January 4-2013 – March 31-2018

Genetic signatures of paediatric cancer predisposition syndromes. Tabori U, Meyn MS, Malkin D, and Shlien A. **McLaughlin Centre, Operating Grant.** \$50,000 CAD. June 1 2014-May 31-2015

Idiopathic Juvenile Osteoporosis – The Next Generation of Sequencing. Kannu P, Dupuis L, Merico D, Sochett E, Cole D. **McLaughlin Centre.** \$20,000 CAD. March 1-2014 – March 31-2015

Imaging mouse “chemobrain”: MRI of methotrexate late effects in pediatric cancers. Nieman B, Ito S, Weksberg R, Schachar R. **Canadian Institute of Health Research.** \$988,725 CAD. 2014-2019

Insulin secretion and sensitivity in patients with glycogen storage disease type I and III. PI (Coll Bandsma R, Mouzaki M, Fagfoury H, Bedford M, Pencharz P, Hamilton J, Feigenbaum A). **Glycogen Storage Disorder Research.** \$41,335 CAD. January 2011-February 2014

Investigating the two-hit hypothesis for neurodevelopment disorders associated with recurrent copy number variants 22q11.2 microduplication and 15q11.2 microdeletion. Carter M. **Physician Services Incorporated Foundation.** \$102,500 CAD. June 1-2014 – June 30-2016

MedSavant: An integrative framework for clinical and research analysis of human genomes. Brudno M, Bader G, Meyn SM. **Ontario Genomics Institute, Genome Canada.** \$1,093,699 CAD. 2013-2016

Mutations in ERF gene as the new genetic causes of craniosynostosis – enabling parents and clinicians to understand why a child is affected. Bowdin S, Chaudhry A, Stockley T. **Rare Disease Foundation.** \$3,500 CAD. September 2013 – September 2014

Small Molecule Substrate Reduction Therapy for Six Mucopolysaccharidoses. Co-PI (Co-PI-Mahuran D). **The Sanfilippo Children’s Research Foundation.** \$157,000 CAD. November 2013 – November 2015

The Effect of Creatine Supplementation on Muscle Function in Childhood. Co-Inv. (PI-Dr. Feldman) **Myositis Myositis Association.** \$100,000 CAD. May 2013-April 2015

The Genetic Epidemiology of Autism; Family and Molecular Studies. Scherer SW, Szatmari P, Carter M. **Canadian Institutes for Health Research.** \$1,112,424 CAD. Jun 1-2013 – May 31-2018

The Study of Toddlers with Autism and Regression (STAR). Co-I (PI-Dr. Loh). **HRSA (subcontract Massachusetts General Hospital).** \$213,854 CAD. Jan 2011-Dec 2013

Urea Cycle Disorder Research. PI. **Private Restricted Donation.** \$200,000 CAD. March 2013 – February 2017

Whole exome Sequencing in the NICU-Developing a rapid, specific and sensitive pipeline for the diagnosis of genetic disease in the newborn. Cohn R, Bowdin S, Moore A, Whyte H, Bedford M, Doctor S. **Accelerator Grant, McLaughlin Centre, University of Toronto.** \$20,000 CAD. May 1-2014 – April 30-2015

Whole genome sequencing in paediatric care: An informed implementation. Zlotnik Shaul R, Szego M, Shuman C, Meyn MS, Hayeems R, Bowdin S. **McLaughlin Centre, Operating Grant.** \$50,000 CAD. June 1-2014-May 31-2015

Staff

Division Head

Dr. Ronald Cohn

Full Time

Dr. Sarah Bowdin
 Dr. Melissa Carter
 Dr. David Chitayat
 Dr. Peter Kannu
 Dr. Saadet Mahmutoglu
 Dr. Roberto Mendoza
 Dr. Stephen Meyn
 Dr. Julian Raiman
 Dr. Andreas Schulze
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Part Time

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 Dr. Leona Fishman
 Dr. Jonathan Kronick

Clinical Fellows

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 Dr. Lauren Chad
 Dr. Michal Inbar-Feigenberg
 Dr. Raymond Kim
 Dr. Tatiana Munoz
 Dr. Enas Nasr

Subspecialty Residents

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clinical pharmacology

Connie Mackenzie and Chris Lazongas

Divisional Overview

In the 2013-2014 academic year, faculty members and trainees of Division of Clinical Pharmacology and Toxicology published more than 100 papers, based on 12 active research grants in various fields, including pregnancy outcomes of antidepressant exposure and drug excretion into breast milk.

One of the division's major clinical activities, the Ontario Poison Center led by Dr. Thompson, continues providing clinical toxicology coverage for the province of Manitoba, in addition to Ontario. Responding to the increasing role of the center, we have recruited Dr. Connie Mackenzie as an assistant director of the center. There were more than 60,000 poison/overdose-related inquiries for the 2013-2014 academic year.

The Motherisk program led by Dr. Koren continues to be a flagship of the division. Dr. Koren and the Motherisk program and partners established 2 classes for children with Fetal Alcohol Spectrum Disorder in Northern Ontario.

As a new clinical, research and education focus of the division and led by Dr. Shinya Ito, a consultation service in pharmacogenetics and pharmacogenomics is being prepared with collaboration with the Genetic Medicine Center and the Department of Paediatric Laboratory Medicine. In order to drive this initiative further, Ms. Iris Cohn was recruited as a pharmacogenetics advisor of the division.

Honors and Awards

Nulman, I: Winner of Centre of Excellence for Early Childhood Development (CEECD) and the Strategic Knowledge Cluster on Early Child Development, Montreal, Quebec, April 24, 2014

Nulman, I: PhD Defense on "Methodology in Behavioral Teratology Drug Safety Studies in Depression". Department of Pharmacology, University of Toronto, Toronto, Ontario, March 2014

Ito, S: Winner of Distinguished Service and Education award Canadian Society of Pharmacology and Therapeutics, Winnipeg, Manitoba, June 2014

Koren, G: Mentor award. Department of Pediatrics, The Hospital for Sick Children, Toronto, Ontario, June 2014

Publications

Albar WF, Russell EW, Koren G, Rieder MJ, van Umm SH. Human hair cortisol analysis: comparison of the internationally-reported ELISA methods. *Clinical and Investigative Medicine* 2013; 36 (6): pp e312-316.

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Breiner P, Nulman I, Koren G. Identifying the Neurobehavioral Phenotype of Fetal Alcohol Spectrum Disorder in Young Children. *Journal Population Therapy in Clinical Pharmacology* 2013; 20 (3): pp e334-339.

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Chan J, Koren G. Is mild-moderate drinking in pregnancy harmless? New experimental evidence to the opposite. *Journal of Population Therapy and Clinical Pharmacology* 2013; 20 (2): pp e107-109.

Choi JS, Koren G, Nulman I. Re: Letter to the Editor: Pregnancy and isotretinoin therapy. *Canadian Medical Association Journal*. 2013; 185 (6): pp 508.

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Etwel F, Hutson JR, Madadi P, Gareri J, Koren G. Fetal and perinatal exposure to drugs and chemicals: novel biomarkers of risk. *Annual Review Pharmacology Toxicology* 2013; 54: pp 295-315.

Fujii H, Goel A, Bernard N, Pistelli A, Yates LM, Stephens S, Han JY, Matsui D, Etwel F, Einarson TR, Koren G, Einarson A. Pregnancy outcomes following gabapentin use: results of a prospective comparative cohort study. *Neurology* 2013; 80 (17): pp 1565-1570.

Gesundheit B, Rosenzweig JP, Naor D, Lerer B, Zachor DA, Procházka V, Melamed M, Kristt DA, Steinberg A, Shulman C, Hwang P, Koren G, Walfisch A, Passweg JR, Snowden JA, Tamouza R, Leboyer M, Farge-Bancel D, Ashwood P. Immunological and autoimmune considerations of Autism Spectrum Disorders. *Journal of Autoimmune* 2013; pp 44: 1-7.

Gijzen VMGJ, van Schaik RHN, Soldin OP, Soldin SJ, Nulman I, Koren G, de Wildt SN. P450 oxidoreductase *28 (POR*28) and tacrolimus disposition in pediatric kidney transplant recipients: a pilot study. *Therapeutic Drug Monitoring* 2014; 36 (2): pp 152-158.

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Hanly L, Rieder MJ, Huang SH, Vasylyeva TL, Shah RK, Rigueira O, Koren G. N-acetylcysteine rescue protocol for nephrotoxicity in children caused by ifosfamide. *Journal of Population Therapy and Clinical Pharmacology* 2013; 20 (2): pp e132-145.

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Lambert CA, Sanders A, Wilder RS, Slade GD, Van Uum S, Russell E, Koren G, Maixner W. Chronic HPA Axis Response to Stress in Temporomandibular Disorder. *Journal of Dental Hygiene* 2013; 88 (1): pp 5-12.

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Books and Chapters

Koren G, Prozac Baby: Diary of a Fetus Create Space Independent Publishing Platform International-Amazon USA, 2014 (English)

Koren G, Nulman I. *The Motherisk Guide to Diagnosing Fetal Alcohol Spectrum Disorder*. 2014, Third Edition.

Grants and Funding

Active Surveillance and evaluation of adverse reactions in Canadian healthcare (DSEN SEARCH). Carleton B, Koren G. **Canadian Institutes of Health Research**. \$212,000/yr CAD. October 1-2013-September 20- 2016

Active Surveillance and evaluation of adverse reactions in Canadian healthcare. Optimizing chronic hepatitis C treatment using pharmacogenomic markers. Carleton B, Koren G. **Canadian Institutes of Health Research**. \$225,000/yr CAD. October 1-2014-September 30-2016

Canadian Prenatal Nutrition Program. Koren G. **Breaking the Cycle**. \$70,000/yr CAD. April 1-2014-March 31-2017

Childhood Cancer-Late Effects of Treatment” Team grant competition. Neurocognitive-Phenome, Genome, Epigenome and Nutriome in Childhood leukemia Survivors: N-PhenoGENICS. Ito S. **Canadian Institutes of Health Research (Institute of Cancer Research)**. \$1,898,381 CAD. April 2012-March 2017

Community Action Program for Children, Canadian Public Health Agency. Koren G. **Breaking the Cycle**. \$398,000/yr CAD. April 1-2014-March 31-2017

Development of novel assays for severe adverse drug reactions and establishment of a drug safety laboratory service facility. Koren G. Rieder M. **Innovation Fund: ASickKids AFP**. \$151,000 CAD. 2014-2016

Drug in Lactation Analyses Consortium Phase 1”. Ito S. **Canadian Institutes of Health Research-Drug Safety and Effectiveness Network (Catalyst grant)**. \$97,150 CAD. June 2012 – May 2013

Drug Safety and Effectiveness Network: Active Surveillance and evaluation of adverse reactions in Canadian healthcare (DSEN SEARCH). Cardiac Safety of 5H3 Blockers. Ito S. **Canadian Institutes of Health Research**. \$1,048,500 CAD. June 2011-May 2014

Drug Safety and Effectiveness Network: 5-HT3 Antagonists (Antiemetics) & Cardiac Safety, Using an Active Surveillance Approach. Ito S. **Canadian Institutes of Health Research** \$424,700 CAD (\$60,000 for SickKids site). June 2013-May 2015

Drug Safety and Effectiveness Network: Pharmacogenomics of Adverse Reactions Events Nation-wide Team (DSEN-PREVENT). Ito S. **Canadian Institutes of Health Research**. \$1,945,500 CAD total. June 2011-May 2014

Drugs and Human Milk [MT13747]. Ito S. **Canadian Institutes of Health Research**. \$602,292 CAD. June 2010-May 2015

Effect of maternal disease on maternal and fetal drug exposure, Koren G, Miller Piquette. **Canadian Institutes of Health Research**. \$125,311/yr CAD. July 1-2014-June 30-2017

European Union: Global Research in Paediatrics (GRIP): Network of Excellence. Ito S. **European Union**. \$443,360 (305765EURO). June 2011-May 2016

Genotype Specific Approaches to Therapy in Childhood (GATC); Canadian Pharmacogenomic Network for Drug Safety (CPNDS). Ito S. **Canadian Institutes of Health Research**. \$105,000/yr to The Hospital for Sick Children. June 2009-May 2015

Hair cortisol for stress in mothers of children with FASD. VanUum S, Koren G. **Canadian Foundation for Fetal Alcohol Research**. \$24,000. September 10-2012-August 31-2014

Health Technology Assessment Research Program (UK): Interventions for hyperemesis gravidarum; Systematic review and economic evaluation. Vale L, Koren G. **The National Institutes for Health Research**. £264,401.80 EURO. July 1-2013-June 30-2014

International Registry for Gilenya in Multiple Sclerosis. Koren G. **Novartis Inc**. \$595,000 CAD. January 1-2011-December 31-2017

Long term neurodevelopmental outcome after exposure to psychotropic drugs during pregnancy. Koren G, Nulman I. **The Norwegian Research Council**. €460,000 EURO. June 1-2012 – May 31-2014

Long-Term Outcomes and Corresponding Vulnerability and Protective Factors in Adolescents with Fetal Alcohol Spectrum Disorder. Nulman I. **Canadian Institutes of Health Research Award**. \$70,000 CAD. September 2013-July 2015

Measuring hair cortisol as a biomarker of stress among people residing near wind mills. Koren G. **Health Canada-Stats Canada**. \$87,000 CAD. May 1-2013-June 30, 2015

Medication Use in Pregnancy with focus on attitudes, perception of risk and mental well-being. External research fund, Norway & Motherisk collaboration. Nulman I. **University of Oslo**. €226 000 EURO. January 2011-December 2013

Neurodevelopment of Children Exposed in Utero to Chemotherapy for Maternal Breast Cancer. Multi-Centered Study (7 Ontario medical centers). Nulman I. **Canadian Breast Cancer Foundation (CBCF)** \$436,257 CAD. October 2010-September 2016

Neurocognitive-Phenome, Genome, Epigenome and Nutriome in Childhood leukemia Survivors: N-PhenoGENICS “Childhood Cancer-Late Effects of Treatment” Team grant competition. Ito S. **Canadian Institutes of Health Research**. \$1,898,381 (over 5 yr). June 2012 – May 2017

Ontario Government. Koren G. **Breaking the Cycle**. \$383,000/yr CAD. April 1-2014-March 31-2017

Pharmacogenetics of adverse drug events. Hayden M, Koren G. **Canadian Institutes of Health Research-Drug Safety and Effectiveness Network**. \$590,000/yr CAD. June 2011- May 2014

Physician Reference Guide for the Treatment of Depression in Pregnancy with Antidepressant Medication: Knowledge to Action Guide. Grigoriadis S. **Canadian Institutes of Health Research**. \$170,467 CAD. July 1-2013-June 30-2015

Post tonsillectomy use of opioids in children with obstructive sleep apnea. Koren G. **Canadian Institutes of Health Research- Drug Safety and Effectiveness Network**. \$99,000 CAD. July 1-2012-June 30-2013

Pregnancy outcome following gestational exposure to Muscle Care products. Koren G. **Ontario Centers of Excellence**. \$59,000 CAD. July 1-2012-June 30-2014

Pregnancy Outcome Following in-Utero Exposure to Second Generation Antipsychotics. Massachusetts General Hospital. Nulman I. **National Pregnancy Registry of Atypical Antipsychotics in pregnancy**. \$400,000 USD. March 2014-April 2017

Prevalence of FASD in Canada. Koren G, Poppova L. **Pan American Health Organization-World Health Organization**. \$349,016 CAD. July 1-2012-June 30-2014

Staff

Division Head

Dr. Shinya Ito

Full-Time

Dr. Gideon Koren

Dr. Irena Nulman

Dr. Margaret Thompson

Part-Time

Dr. Ian Ball

Dr. David Juurlink

Dr. Christopher Lazongas

Dr. Connie Mackenzie

Dr. Marco Sivilotti

Cross-Appointees

Dr. Sylvain Baruchel

Dr. Lidia Derewlany

Dr. Yaron Finkelstein

Dr. Sheila Jacobson

Dr. Alejandro Nava-Ocampo

Dr. Christopher Parshuram

Dr. Savithiri Rathnapalan

Dr. Denis Scolnik

Dr. Bonnie Stevens

Dr. Anna Taddio

Research Fellows

Dr. Smita Karande

Dr. Tohru Kobayashi

Dr. Ernest Kopecky

Dr. Noga Rogalla

Dr. Masanobu Takeuchi

Dr. Parvaneh Yazdani-Brojeni

Program of Paediatric Pharmacogenomics Medicine: GeneMed. Ito S. **Ontario Ministry of Health and Long term Care (Drug Innovation Fund)**. \$589,697 CAD. April, 2011-March 2014

Surveillance program for diclectin in pregnancy. Koren G. **Duchesnay Inc**. \$168,000/yr CAD. July 1-2012-June 30-2017

Using a mobile community research laboratory to improve understanding, treatment and prevention of addiction and mental illness co-morbidities at the individual and community level: “The Ontario Communities Project” (Emerging Team Grant). Koren G. **Canadian Institutes of Health Research**. \$749,336 CAD. July 1-2009-June 30-2014

Clinical Fellows

Dr. Eran Barzilay

Dr. Shahnaz Chaudhry

Dr. Yifat Gadot

Dr. Tom Leibson

Dr. Nir Melamed

Dr. Shirin Namouz-Haddad

Dr. Gal Neuman

Dr. Jak Ozsarfaty

Dr. Reo Tanoshima

Subspecialty Residents

Dr. Hagit Bergman

Dr. Jesse Goodwin

Dr. Shaun Hosein

Administrative Staff

Niki Balamatsis

Sarah Bondy

Hila Halshtok

Leah Moscato

Joycelyn Peters-Adams

Victoria Snell

Donna Tedesco

Shannon Vanderkooi



developmental paediatrics

Front row: Anne Kawamura, Darcy Fehlings Angela Orsino and Liz Jimenez
 Back row: Sharon Smile, Peter Rumney and Golda Milo-Manson

Divisional Overview

The Division of Developmental Paediatrics is situated at the Holland Bloorview Kids Rehabilitation Hospital. The division consists of full-time academic clinicians as well as a community section of developmental paediatricians. The main clinical focus of the division is on childhood neurodevelopmental and neuro-rehabilitation disorders. Comprehensive assessment and treatment programs are run for children and youth with conditions such as cerebral palsy, acquired brain injury, neuromuscular disorders and spina bifida. Inpatient services are provided for children with medical conditions requiring complex continuing care. Specialized assessment clinics provide diagnostic assessments for children and youth with autism spectrum disorder with clinics located at Holland Bloorview as well as regional developmental clinics situated throughout the metropolitan Toronto area. The division runs a large psychopharmacology clinic providing consultation for children and youth with complex neuro-behavioural needs.

Within the division, there is a strong commitment to education, Under the leadership of Dr. Anne Kawamura as program director, the fully accredited subspecialty residency program in Developmental Paediatrics is the largest in Canada. Paediatric, psychiatry, and neurology residents and medical students are trained in applied childhood disability. A highlight of the divisions' educational activities is the Child Development Update – a national conference held once every 3 years – chaired by Dr. Golda Milo-Manson and supported by the continuing educational office of The Hospital for Sick Children and the Department of Paediatrics. This conference attracts attendees from across Canada.

The division members actively lead research projects in applied childhood disability studies, in association with the Bloorview Research Institute led by Professor Tom Chau. Highlights include the creation of two Ontario-based research networks funded by the Ontario Brain Institute – one focused on autism spectrum disorder led by Dr. Evdokia Anagnostou and one focused on cerebral palsy led by Dr. Darcy Fehlings.

Honors and Awards

Anagnostou, E: Awarded a Canada Research Chair-Tier 2, Canada Research Chair, Toronto, Ontario, April 2014

Anagnostou, E: Selected for APIRE/Janssen Resident Psychiatric Research Scholars, Psychiatry, Supervisor, Awardee Name: Danielle Baribeau. American Psychiatric Institute for Research and Education, Arlington, Virginia, US, 2014

Anagnostou, E: Best Oral Presentation, Harvey Stancer Research Day, Psychiatry, Supervisor, Awardee Name: Danielle Baribeau. University of Toronto, Department of Psychiatry, Toronto, Ontario, June 2014

Huber, J: Awarded The Hospital for Sick Children Humanitarian Award – Family Centered Care Advisory Council Award – Cochlear Implant Team, Toronto, Ontario, 2013

Huber, J: Award of Excellence for Inter-professional Collaboration – Canadian Association of Speech Language Pathologists and Audiologists – Cochlear Implant Team, The Hospital for Sick Children, Toronto, Ontario, 2013

Hung, R: Winner of the Spotlight Recognition Award, Inpatient Leadership, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Ontario, 2014

Kawamura, A: Awarded Royal College Fellowship for Studies in Medical Education, Royal College of Physicians and Surgeons of Canada, Toronto, Ontario, July 2013

Milo-Manson, G: Nominated, Royal College of Physicians and Surgeons of Canada Leadership Award-“Leader of the Pack Award”, Toronto, Ontario, July 2013

Milo Manson, G: Awarded Royal College of Physicians and Surgeons of Canada Specialty Committee Exceptional Service Award, Toronto, Ontario, July 2013

Rumney, P: Recognized for significant contribution to helping children and adolescents with Acquired Brain Injury. Toronto ABI Network. Annual Back to School Conference, Toronto, Ontario, 2013

Smile, S: Winner, Division of Developmental Paediatrics Faculty Teaching Award, Developmental Paediatrics, Department of Pediatrics, Faculty of Medicine, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Ontario, June 2013

Publications

Agnihotri S, Gray J, Colantonio A, Polatajko H, Cameron D, Wiseman-Hakes C, Rumney P, Keightley M. Arts-based Social Skills Interventions for Adolescents with Acquired Brain Injuries: Five Case Reports. *Dev Neurorehabil.* 2014; 17 (1): pp 44-63.

Anagnostou E, Soorya L, Brian JA, Dupuis A, Mankad D, Smile S, Jacob S. Intranasal oxytocin in the treatment of autism spectrum disorders: A review of literature and early safety and efficacy data in youth. *Brian Research* 2014: 14: pp 134-136.

Anagnostou E, Soorya L, Brian J, Dupuis A, Mankad D, Smile, S, Jacob S. Intranasal oxytocin in the treatment of autism spectrum disorders: A review of literature and early safety and efficacy data in youth. *Brain Research* 2014: Feb. [Epub ahead of print] pii: S0006-8993(14)00134-6. doi: 10.1016/j.

Anagnostou E, Zwaigenbaum L, Szatmari P, Fombonne E, Fernandez BA, Woodbury-Smith M, Brian J, Bryson S, Smith IM, Drmic I, Buchanan JA, Roberts W, Scherer SW. Autism spectrum disorder: advances in evidence-based practice. *Canadian Medical Association Journal* 2014: 186 (7): pp 509-519.

Baribeau D, Anagnostou E. A comparison of neuroimaging biomarkers in childhood onset schizophrenia and autism spectrum disorder- evidence for a dynamic lesion. *Frontiers in Neuropsychiatric Imaging and Stimulation* 2013: 20 (4): pp 175.

Baribeau DA, Anagnostou E. An update on medication management of behavioral disorders in autism. *Current Psychiatry Reports* 2014: 16 (3): pp 437.

Baribeau DA, Anagnostou E. Social communication is an emerging target for pharmacotherapy in autism spectrum disorder-A review of the literature on potential agents. *Journal of Canadian Academy of Child and Adolescent Psychiatry* 2014: 23 (1): pp 20-30.

Cancelliere C, Hincapié CA, Keightley M, Godbolt AK, Côté P, Kristman VL, Stålnacke BM, Carroll LJ, Hung R, Borg J, Nygren-de Boussard C, Coronado VG, Donovan J, Cassidy JD. Systematic review of prognosis and return to play after sport concussion: Results of the International Collaboration on Mild Traumatic Brain Injury Prognosis. *Archives of Physical Medicine Rehabilitation* 2014: 95 (3 Suppl): S210-229.

Doyle-Thomas KAR, Card D, Soorya L, Wang AT, Fan J, Anagnostou E. Metabolic mapping of deep brain structures and associations with symptomatology in autism spectrum disorders. *Research in Autism Spectrum Disorders* 2014: 8 (1): pp 44-51.

Duerden EG, Taylor MJ, Soorya L, Wang T, Fan J, Anagnostou E. Neural correlates of inhibition of socially relevant stimuli in adults with autism spectrum disorder. *Brain Research.* 2013 Oct 2. Epub 2013 Aug 17.

Eilam-Stock T, Xu P, Cao M, Gu X, Van Dam NT, Anagnostou E, Kolevzon A, Soorya L, Park Y, Siller M, He Y, Hof PR, Fan J. Abnormal autonomic and associated brain activities during rest in autism spectrum disorder. *Brain* 2014: Jan 137 (Pt 1): pp 153-171.

Fawkes D, Malow B, Weiss S, Reynolds A, Loh A, Adkins K, Wofford D, Wyatt A, Goldman S. Conducting actigraphy research in children with neurodevelopmental disorders: A practical approach. *Behavioural Sleep Medicine* 2014: 12: pp 1-16.

Fehlings D, Switzer L, Findlay B, Knights S. Interactive computer play as “Motor Therapy” for individuals with cerebral palsy. *Seminars in Pediatric Neurology* 2013: 20 (2): pp 127-138.

Fernandez BA, Duque F, Delorme R, Dawson G, Chaste P, Café C, Brennan S, Bourgeron T, Bolton PF, Bölte S, Bernier R, Baird G, Bailey AJ, Anagnostou E, Almeida J, Wijsman EM, Vieland VJ, Vicente AM, Schellenberg GD, Pericak-Vance M. Convergence of genes and cellular pathways dysregulated in autism spectrum disorders. *American Journal of Human Genetics* 2014: 1: 94 (5): pp 677-694.

Fleury A, Kushki A, Tanel N, Anagnostou E, Chau T. Statistical persistence and timing characteristics of repetitive circle drawing in children with ASD. *Developmental Neurorehabilitation* 2013: Aug 16 (4): pp 245-254.

Hallett V, Lecavalier L, Sukhodolsky DG, Cipriano N, Aman MG, McCracken JT, McDougle CJ, Tierney E, King BH, Hollander E, Sikich L, Bregman J, Anagnostou E, Donnelly C, Katsovich L, Dukes K, Vitiello B, Gadow K and Scahill L. Exploring the manifestations of anxiety in children with autism spectrum disorders. *Journal of Autism and Developmental Disorders* 2013: 43 (10): pp 2341-2352.

Hung R, Carroll LJ, Cancelliere C, Côté P, Rumney P, Keightley M, Donovan J, Stålnacke BM, Cassidy JD. Systematic review of the clinical course, natural history, and prognosis for pediatric mild traumatic brain injury: Results of the International Collaboration on Mild Traumatic Brain Injury Prognosis. *Archives of Physical Medicine and Rehabilitation* 2014: 95 (3 Suppl): S174-191.

Jiang YH, Yuen RK, Jin X, Wang M, Chen N, Wu X, Ju J, Mei J, Shi Y, He M, Wang G, Liang J, Wang Z, Cao D, Carter MT, Chrysler C, Drmic IE, Howe JL, Lau L, Marshall CR, Merico D, Nalpathamkalam T, Thiruvahindrapuram B, Thompson A, Uddin M, Walker S, Luo J, Anagnostou E, Zwaigenbaum L, Ring RH, Wang J, Lajonchere C, Wang J, Shih A, Szatmari P, Yang H, Dawson G, Li Y, Scherer SW. Detection of clinically relevant genetic variants in autism spectrum disorder by whole-genome sequencing. *American Journal of Human Genetics* 2013: 93 (2): pp 249-263.

Keightley ML, Côté P, Rumney P, Hung R, Carroll LJ, Cancelliere C, Cassidy JD. Psychosocial consequences of mild traumatic brain injury in children: results of a systematic review by the International Collaboration on Mild Traumatic Brain Injury Prognosis. *Archives of Physical Medicine and Rehabilitation* 2014: 95 (3 Suppl): S192-200.

King BH, Dukes K, Donnelly CL, Sikich L, McCracken JT, Scahill L, Hollander E, Bregman JD, Anagnostou E, Robinson F, Sullivan L, Hirtz D. Baseline factors predicting placebo response to treatment in children and adolescents with autism spectrum disorders: A multisite randomized clinical trial. *JAMA Pediatrics* 2013: 167 (11): pp 1045-1052.

Knights S, Dato N, Kawamura A, Switzer L, Fehlings D. Further evaluation of the scoring, reliability, and validity of the hypertonias assessment tool (HAT). *Journal of Child Neurology* 2014: 29 (4): pp 500-504.

Korngut L, Campbell C, Johnston M, Benstead T, Genge A, Mackenzie A, McCormick A, Biggar D, Bourque P, Briemberg H, O’Connell C, Dojeiji S, Dooley J, Grant I, Hogan G, Johnston W, Kalra S, Katzberg HD, Mah JK, McAdam LC, McMillan HJ, Melanson M, Selby K, Shoosmith C, Smith G, Venance SL, Wee J, CNDR Investigator Network. The CNDR: Collaborating to translate new therapies for Canadians. *Canadian Journal of Neurological Sciences* 2013: Sep 1 40 (5): pp 698-704.

Mak-Fan KM, Morris D, Vidal J, Anagnostou E, Roberts W, Taylor MJ. White matter and development in children with an autism spectrum disorder. *Autism* 2013: Sep 17 (5): pp 541-557.

Malow BA, Adkins KW, Reynolds A, Weiss SickKids, Loh A, Fawkes D, Katz T, Goldman SE, Madduri N, Hundley R, Clemons T. Parent-based sleep education improves sleep onset delay in children with autism spectrum disorders. *Journal of Autism and Developmental Disorders* 2013: Epub.

Penner M, Xie W, Binopal N, Switzer L, Fehlings D. Characteristics of pain in children and youth with cerebral palsy. *Pediatrics*. 2013: Aug; 132 (2): e407-413.

Pinto D, Delaby E, Merico D, Barbosa M, Merikangas A, Klei L, Thiruvahindrapuram B, Xu X, Ziman R, Wang Z, Vorstman JA, Thompson A, Regan R, Pilorge M, Pellecchia G, Pagnamenta AT, Oliveira B, Marshall CR, Magalhaes TR, Lowe JK, Howe JL, Griswold AJ, Gilbert J, Duketis E, Dombroski BA, De Jonge MV, Cuccaro M, Crawford EL, Correia CT, Conroy J, Conceição IC, Chiocchetti AG, Casey JP, Cai G, Cabrol C, Bolshakova N, Bacchelli E, Anney R, Gallinger S, Cotterchio M, Casey G, Zwaigenbaum L, Wittemeyer K, Wing K, Wallace S, van Engeland H, Tryfon A, Thomson S, Soorya L, Rogé B, Roberts W, Poustka F, Mougá S, Minshew N, McInnes LA, McGrew SG, Lord C, Leboyer M, Le Couteur AS, Kolevzon A, Jiménez González P, Jacob S, Holt R, Guter S, Green J, Green A, Gillberg C, Fernandez BA, Duque F, Delorme R, Dawson G, Chaste P, Café C, Brennan S, Bourgeron T, Bolton PF, Bölte S, Bernier R, Baird G, Bailey AJ, Anagnostou E, Almeida J, Wijsman EM, Vieland VJ, Vicente AM, Schellenberg GD, Pericak-Vance M, Paterson AD, Parr JR, Oliveira G, Nurnberger JI, Monaco AP, Maestrini E, Klauck SM, Hakonarson H, Haines JL, Geschwind DH, Freitag CM, Folstein SE, Ennis S, Coon H, Battaglia A, Szatmari P, Sutcliffe JS, Hallmayer J, Gill M, Cook EH, Buxbaum JD, Devlin B, Gallagher L, Betancur C, Scherer SW. Convergence of genes and cellular pathways dysregulated in autism spectrum disorders. *American Journal of Human Genetics* 2014: 19 4(5): pp 677-694.

Smile S, Dupuis A, Macarthur C, Roberts W, Fehlings D. Autism spectrum disorder phenotype in children with ambulatory cerebral palsy: A descriptive cross-sectional study. *Research in Autism Spectrum Disorders* 2013: 7 (2): pp 391-397.

Vara AS, Pang EW, Doyle-Thomas KAR, Vidal J, Taylor MJ, and Anagnostou E. Is inhibitory control a “no-go” in adolescents with autism spectrum disorder? *Molecular Autism* 2014: 31: 5 (1): pp 6.

Villeneuve M, Chatenoud C, Minnes P, Perry A, Hutchinson NL, Frankel EB, Loh A, Dionne C, Weiss J, Versnel J, Isaacs B: Interprofessional research on the Inclusion of young children with developmental disabilities as they transition from preschool to elementary school. *Canadian Journal of Education* 2013: 36: 1: pp 4-43.

Books and Chapters

Huber JF. Behavioral and psychological disorders. In: *Textbook of Pediatric Balance Disorders* (O'Reilly, Morlett, Cushing eds). Plural Publishing 2013.

Rumney PG, Penner M. Traumatic brain injury and BPPV. In: *Manual of Pediatric Balance Disorders* (O'Reilly R, T Morlet T, Cushing SL, eds). Plural Publishing, 2013: pp 250.

Grants and Funding

A pilot dose finding study of pioglitazone in children with ASD. Anagnosou E, Brian J. **Physicians Services Incorporated Foundation**. \$127,700 CAD. August 2012-July 2014

An evaluation of the long-term effectiveness of botulinum toxin in children with spastic cerebral palsy. Fehlings D, Goldsmith C, Narayanan U, Rosenbaum P, Wright W. **Canadian Institutes of Health Research**. \$442,307 CAD. April 2008 – March 2015

Autism spectrum disorders: Genomes to outcomes. Anagnostou E, Scherer S, Szatmari P **Genome Canada/Canadian Institutes of Health Research/Ontario Ministry of Economic Developmental and Innovation**. \$10,000,000 CAD. April 2013-March 2017

Autism spectrum and associated neurodevelopmental disorders: Genomes to outcome. Scherer S, Anagnostou E. **Ontario Research Fund (ORF)**. \$8,920,652 CAD. October 2010-September 2015

Bridging worlds by integrating perspectives and competencies-exploring the development of adaptive expertise. Kawamura A, Mylopoulos M. **Bloorview Research Institute Catalyst Grant**. \$12,000 CAD. January 2014-December 2015

Childhood Cerebral Palsy Integrated Discovery Network “CP-NET”. Fehlings D, deVeber G, Fehlings M, Menon R, Rosenbaum P, Scherer S, Ansari D, Biddiss E, Campbell C, Carter M, Chau T, Chen R, Cheyne D, Ferro M, Frid P, Gorter JW, Graham N, Hall G, Henkelman M, Kawamura A, Kingsnorth S, McCormick A, Mesterman R, Miller S, Morshead C, Palisano R, Paterson A, Pelland L, Raybaud C, Samdup D, Scott S, Segalowitz S, Shroff M, Strothers S, Taylor M, van der Kooy D, Wintle R, Wright V. **Ontario Brain Institute**. \$7,500,000 CAD. August 2013 – July 2018

Co-clinical trials in mice and humans in autism. Lerch J, Anagnostou E. **Azrieli Foundation-Brain Canada**. \$2,500,000 CAD. April 2014-March 2019

CP Cycle to Fun. Graham N, Fehlings D, Warburton D, Rhodes R, Wright V, Mandryk R. **Collaborative Health Research Projects (CHRP) Natural Sciences and Engineering Research Council of Canada**. \$510,978 CAD. April 2012 – March 2015

Enhancement of developmental motor plasticity in perinatal stroke with TDCS. Kirton, A. Hill MD, Fehlings D, Andersen J, Goodyear B, Dukelow S, Beaulieu C, Dewey D, Chen R, Majnemer A. **Heart and Stroke Foundation**. \$270,000 CAD. April 2012 – March 2015

Exploring the King's Outcome Scale for childhood head injury in children attending rehabilitation hospital. Rumney P, McAdam L, Boyle E, Hung R, Cassidy JD, Cote P, Ameis A, Lacerte M. **PSI**. \$169,989 CAD. September 2013-March 2014

Innovation through the use of common data: Improving the diagnosis and treatment of youth with mild traumatic brain injury in Canada. Gagnon I, Hung R, Beauchamp M, Christie B, DeMatteo C, Fait P, Friedman D, Juncker D, Keightley M, Marcoux J, McFayden B, Mok E, Mrazik M, Pelland L, Pltto A, Singh S, Sirios K, Stroman P, Swaine B, Taneja C, Tator C, Zabjek K, Zemek R. **Team Grant: Mild Traumatic Brain Injury in Children and Youth – Canadian Institutes of Health Research**. \$1,366,895 CAD. April 2013-April 2018

Intranasal oxytocin for the treatment of children and adolescence with autism spectrum disorders (ASD). Anagnostou E, Jacob S, Brian J. **Department of Defense (USA)**. \$801,790 USD. September 2010-August 2013

Intranasal oxytocin for social cognition/function in adults with autism. Woodbury-Smith M, Anagnostou E, Peter Szatmari P, Brian J. **Canadian Institutes of Health Research Operating Grant**. \$1,073,417 CAD. January 2012-January 2016

“My Child has Autism?”: Teaching developmental pediatrics residents to explore patient and family perspectives through a novel family facilitator-standardized patient educational model. Kawamura A, Mylopoulos M, Jimenez E, Orsino A, McNaughton N. **The AMS Phoenix Project, A Call to Caring Project Grant.** \$10,730 CAD. November 2013-October 2014

‘NeuroCare’ as innovation in intervention: A neurophysiological approach to determine readiness for return to activity. Keightley M, Hung R. **CIHR-Traumatic Brain Injury in Children and Youth.** \$1,065,728 CAD. March 2013-March 2018

‘NeuroCare’ as innovation in intervention: A neurophysiological approach to determine readiness for return to activity. Keightley M, Hung R. **CIHR MTBI Catalyst Grant.** \$91,872 CAD. June 2013-June 2014

Objective and subjective assessment of sleep in adolescents after mild traumatic brain injury compared to non-injured controls: A pilot study. Hung R. **Bloorview Research Institute Catalyst Grant.** \$11,466 CAD. August 2013-April 2014

OptEC: Optimizing early child development in the primary care practice setting: Pragmatic randomized trial of iron treatment for young children with non-anemic iron deficiency. Parkin P, Birken C, Fehlings D, Macarthur C, Maguie J, Mamak E, Mamdan M, Thorpe K, Zlotkin S. **Canadian Institutes of Health Research.** \$541,567 CAD. April 2011 – March 2016

Outcomes of hip interventions for children with cerebral palsy-An international multi-centre prospective comparative cohort study. Narayanan U, Graham K, Willan A, Mulpuri K, Stephens D. **Canadian Institutes of Health Research-Musculoskeletal Health and Arthritis.** \$678,975 CAD. April 2013-March 2018

Paediatric career decision-making: The role of a summer pre-clerkship education program at Holland Bloorview Kids Rehabilitation Hospital. Orsino A, Schwellnus H, McAdam L. **Paediatric Consultant’s Education Innovation and Development.** \$4,957 CAD. 2014-2015

Partnering to promote healthy living through leisure participation for children and youth with physical disabilities: Child health initiatives limiting disability through leisure-CHILD Leisure-Net. Majnemer A, Wittich W, Fehlings D, Bushfield J, Law M. **Canadian Institutes of Health Research. Dissemination Events: Musculoskeletal Health.** \$19,910 CAD. November 2013-October 2014

PROMPT identification of cerebral palsy: Primary-care referral of motor-impaired children: Physician tools. Majnemer A, Ahmed S, Burko B, Dagenais L, Kirton C, Rodriguez R, Shiller M, Andersen J, Bussieres A, Darsaklis V, Leduc D, Shevell M, Snider L, Bergman H, Dagenais E, Fehlings D, Li P, Shikako Thomas D, Thibault J. **Canadian Institutes of Health Research-Human Development, Child and Youth Health.** \$330,576 CAD. April 2014 – March 2018

Province of Ontario Neurodevelopmental Disorders Network (POND). Anagnostou E, Arnold P, Szatmari P, Schachar R, Scherer S. **Ontario Brain Institute.** \$18,750,000 CAD. July 2013-June 2018

The Canadian Neuromuscular Disease Registry. Korngut L, McAdam L. **ALS Canada, Jesse’s Journey, Families of SMA Canada.** \$10,000 CAD. January 2011-present

The Cerebral Palsy Demonstration Project. Goldowitz D, Yager J, Shevell M, Fehlings M, Majnemer A, Miller S, Kirton A. **NeuroDevNet, Networks of Centres of Excellence of Canada (NCE).** \$1,060,000 CAD. April 2013-March 2015

The Challenge Module for evaluating advanced motor skills of children with cerebral palsy: From measurement to child-centred goal setting. Wright V, Gibson B, Rosenbaum P, Fehlings D, Anderson J, Wood E, Mesterman R, Glazebrook C. **Canadian Institutes of Health Research.** \$348,000 CAD. April 2012-March 2015

The Sequential Oral Sensory (SOS) approach intervention in treating children with autism spectrum disorder and limited food repertoire: A pilot study. Smile S, Perry K, Lynch M, Penna M. **Bloorview Research Institute Catalyst Grant.** \$12,000 CAD. April 2014 – March 2015

Therapists’ beliefs regarding the value of walking. Gibson B, Fehlings D, Narayanan U, Wright V, Teachman G. **University of Toronto-Connaught New Researcher Award.** \$45,294 CAD. April 2012 – March 2014

Staff

Division Head

Dr. Darcy Fehlings

Full Time

Dr. Evdokia Anagnostou
 Dr. Jolene Huber
 Dr. Ryan Hung
 Dr. Elizabeth Jimenez
 Dr. Anne Kawamura
 Dr. Alvin Loh
 Dr. Laura McAdam
 Dr. Golda Milo-Manson
 Dr. Angela Orsino
 Dr. Wendy Roberts
 Dr. Jay Rosenfield
 Dr. Peter Rumney
 Dr. Sharon Smile

Part Time and/or Community Physicians

Dr. Douglas Biggar
 Dr. Paige Church
 Dr. Janine Flanagan
 Dr. Cynthia Goldfarb
 Dr. Mark Handley-Derry
 Dr. Carolyn Hunt
 Dr. Anita Jethwa
 Dr. Nicola Jones-Stokreef
 Dr. Peggy Kirkpatrick
 Dr. Zina Levichek
 Dr. Anne Richards
 Dr. Lilly Rojnica
 Dr. Clive Schwartz
 Dr. David Shawn
 Dr. Diann Superina-Bell

Transition to adulthood and adult care in DMD-determination of key elements to build a transition framework. Gibson B, Kingsnorth S, Biggar WD. **Bloorview Research Institute.** \$12,000 CAD. July 2013-March 2014

Treatment of overweight induced by antipsychotic medication in young people with ASD. Anagnostou E, Veenstra-VanderWeele J, Handen B, Butter E, Aman M. **Health Resources and Services Administration (HRSA).** \$1,418,395 USD. April 2012-August 2015

Typical and atypical development of frontal lobe systems and the maturation of social cognitive function. Taylor MJ, Anagnostou E. **Canadian Institutes of Health Research.** \$766,896 CAD. July 2012-June 2017

Working memory function in children with autism. Taylor M, Anagnostou E. **Canadian Institutes of Health Research.** \$353,921 CAD. October 2010-September 2013

Cross Appointees/Scientific Staff

Dr. Jessica Brian
 Dr. Melissa Carter
 Dr. Patricia McKeever

Fellows

Dr. Rudaina Banihani
 Dr. Angie Ip
 Dr. Shannon Knights
 Dr. Alysha Ladha
 Dr. Melanie Penner
 Dr. Abigail Siapno
 Dr. Mohammad Zubairi

Administrative Staff

Maureen Hodge
 Barbara Zimnowodzki



emergency medicine

Suzanne Schuh and Yaron Finkelstein

Divisional Overview

The 2013-2014 academic year for Pediatric Emergency Medicine (PEM) was a year of accelerating our success, both in clinical care of ill and injured children, and in academic productivity. We maintained our excellent performance in patient flow and efficiency despite increasing volumes. We now see over 65,000 patients a year – we are simply busy all year long. The Division continues to provide advanced training in PEM to more than 15 fellows a year in our 1 year and 2 year training tracks, and also supports the education of hundreds of residents and students who rotate through our department. Our educational success matches our clinical excellence, with faculty receiving an average score of 4.5/5 from trainees for effectiveness of education at the bedside.

Emergency medicine continues to develop itself as a leader of important hospital programs and practices. Dr. Suzanne Beno is now co-director of Trauma at SickKids, and has championed some important changes in how our program is organized and in planning for a renovated resuscitation space coming in 2015. Quality improvement efforts in the ED for pain management and safety/integrity of specimen collection have become models for practice elsewhere in the hospital. And the ED celebrate the go-live of electronic nursing documentation in June – a true game-changer for how we do our work with many positive benefits to care, with many lessons learned as the hospital prepares for further advances in information technology.

Increased academic productivity for PEM was visible on many fronts. Peer-reviewed published manuscripts during the academic year numbered more than 40, a 25% increase over the year prior. Total grant funding also increased, including some important large CIHR grants for multi-centre research through the Pediatric Emergency Research Canada (PERC) network. Divisional members were recognized by the Department of Pediatrics for important accomplishments for educational and research excellence, including Dr. Kathy Boutis for Scientific Accomplishment in Research, Dr. Yousef Etoom for Excellence in Community Teaching, Dr. Susanna Talarico with a POWER award, and Dr. Adrienne Davis who was recognized with the CANMEDS award for excellence as a fellow.

Honours and Awards

Beno, S: Winner of Faculty of the Year, Paediatric Emergency Medicine Point of Care Ultrasound, The Hospital for Sick Children, Division of Paediatric Emergency Medicine, Toronto, ON, June 2014

Beno, S: Recognition for Excellence in Advocacy/Leadership, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Boutis, K: Winner of Physician Researcher Award for Scientific Accomplishments, Department of Pediatrics, The Hospital for Sick Children, Toronto, Ontario, 2014

Boutis, K: Recognition for Excellence in Evidence-based Practice, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, 2014

Etoom, Y: Winner of the Community Paediatrics Postgraduate Award for Excellence in Teaching, Department of Paediatrics, University of Toronto, The Hospital for Sick Children, Toronto, Ontario, June 2014

Fischer, JW: Recognition for Excellence in Communication, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Kempinska, A: Recognition for Excellence in Clinical Teaching, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Kempinska, A: Recognition for Excellence in Evidence – based Practice, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Komar L, et al: Winner of General Surgery Divisional Research Award, General Surgery Department, The Hospital for Sick Children, Toronto, Ontario, May 2014

Kwan, CW: Recognition for Excellence in Advocacy/ Leadership, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Mehta, S: Winner of Best Paediatric Emergency Medicine Rounds Presentations of 2013-2014 For 'Effective Presentations' And 'Shock', Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Mizzi, T: Recognition for Communication & Collaboration Excellence Award, Division of Paediatric Emergency Medicine Educational Rounds, The Hospital for Sick Children, Toronto, Ontario, June 2014

Ostrow, O: Recognition for Excellence in Communication, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 5, 2014

Schneeweiss, S: Recognition for Excellence in Collaboration/ Leadership, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Schneeweiss, S: Recognition for Excelling at Excellence, ER – Pain Management Working Group, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Schonfeld, D: Recognition for Excellence in Evidence-Based Practice, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Schonfeld, D: Recognition for Excelling at Excellence, The Hospital for Sick Children, Division of Paediatric Emergency Medicine, Toronto, Ontario, June 2014

Schonfeld, D: Recognition for Clinical Excellence in Teaching, The Hospital for Sick Children, Division of Paediatric Emergency Medicine, Toronto, Ontario, June 2014

Scolnik, D: Recognition for Excellence in Advocacy/ Leadership, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Publications

Ahmad S, Scolnik D, Snehal V, Glatstein M. Use of naloxone for clonidine intoxication in the pediatric age group: case report and review of the literature. *Am J Ther* 2013 Jun 18 [Epub ahead of print].

Al-Azri H, Ratnapalan S. Problem-based learning in continuing medical education: Review of randomized controlled trials. *Can Fam Physician* 2014; 60 (2): pp 157-65.

Alshammary SA, Ratnapalan S, Akturk Z. Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia. *J Educ Eval Health Prof* 2013; 31; 10: 7. doi: 10.3352/jeehp. 2013.10.7

Ayalon I, Glatstein MM, Zaidenberg-Israeli G, Scolnik D, Ben Tov A, Ben Sira L, Reif S: The role of physical examination in establishing the diagnosis of pneumonia. *Pediatr Emerg Care* 2013; 29 (8): pp 893-896.

Beckstead J, Boutis K, Pecaric M, Pusic M. The Influences of Sequential Effects in Randomized Online Learning Tasks. *Applied Cognition*. 2013 September/October 27(5): pp 625-632.

Beno S, Mehta S. Trauma Resuscitation in Kids (TRIK) Royal College of Physicians and Surgeons of Canada affiliated course. Online Module: Assessment and Stabilization of Pediatric Trauma. PA Submission: January 2014 Course Implementation: May 2014.

Berant R and Scolnik D: Topical lidocaine-epinephrine-tetracaine is effective in reducing pain during laceration repair with tissue adhesive in children. *Evidence-Based Nursing* 2013 Dec 24. [Epub ahead of print].

Boutis K, Cogollo W, Fischer J, Freedman SB, BenDavid G, Thomas K. Parental Perceptions of the Possible Risks from Diagnostic Testing that Exposes Children to Ionizing Radiation. *Pediatrics*. 2013 Aug; 132(2): pp 305-311.

Boutis K, Fischer J, Freedman SB, Thomas KE. Radiation exposure from imaging tests in pediatric emergency medicine: a survey of physician knowledge and risk disclosure practices. 2014 Jul; 47(1): 36-44. Doi: 10.1016/j.jemermed.s014.01.030. Epub 2014 Mar 31.

Boutis K, Grootendorst P, Willan A, Plint A, Brison R, Parker P, Sayal A, Butler N, Schuh S, Grimshaw J, Johnson D, Narayanan U. Effect of the Low Risk Ankle Rule on the frequency of radiography in children with ankle injuries. *Canadian Medical Association Journal*. 2013 Oct 15; 185(15): pp E731-E738.

Boutis K, Howard A, Constantine E, Cuomo A, Narayanan U. Evidence to Practice: Orthopedic Management of Common Pediatric Fractures. *Journal of Pediatric Orthopedics*. 2014 May 30 [Epub ahead of print].

Boutis K, Pecaric M, Ridley J, Andrews J, Pusic M. Hinting Strategies for Improving the Efficiency of Medical Student Learning of Deliberately Practiced Web-based Radiographs. *Medical Education*. 2013 Sep; 47(9): pp 877-887.

Coates AL, Leung K, Chan J, Rebeiro N, Charron M, Schuh S. Respiratory system deposition with a novel aerosol delivery system in spontaneously breathing healthy adults. *Respiratory Care* 2013 Dec; 58 (12): pp2087-92. doi: 10.4187/respcare.02455. Epub 2013

Dalziel SR, Thompson JM, Macias CG, Fernandes RM, Johnson DW, Waisman Y, Cheng N, Acworth J, Chamberlain JM, Osmond MH, Plint A, Valerio P, Black KJ, Fitzpatrick E, Newton AS, Kuppermann N, Klassen TP, Pediatric Emergency Research Networks H1N1 Working Group (including Schuh S). Predictors of severe H1N1 infection in children presenting within Pediatric Emergency Research Networks (PERN): retrospective case-control study. *British Medical Journal* 2013 Aug 12; 347: f4836. doi: 10.1136/bmj.f4836.

Demirjian A, Finkelstein Y, Nava-Ocampo A, Arnold A, Jones S, Monuteaux M, Sandora TJ, Patterson A, MB. Harper MB. A Randomized Controlled Trial of a Vancomycin Loading Dose in Children. *Pediatric Infectious Disease Journal* 2013 Nov; 32(11): 1217-1223.

Eason Klatt M, Ratnapalan S. Earlobe Anomalies in Children. *Clin Pediatr (Phila)* 2013; (24): pp 53-59.

Evans A, Caudarella A, Ratnapalan S, Chan K. The cost and impact of the interim federal health program cuts on child refugees in Canada. *PLoS One*. 2014; 8; 9 (5): e96902.

Finkelstein Y, Fischer JW. Young child with strabismus. *Annals of Emergency Medicine* 2014; 64 (2): pp 213-217.

Finkelstein Y, Hutson JR, Freedman SB, Wax P, Brent J; on behalf of the Toxicology Investigators Consortium (ToxIC) Case Registry. Drug-induced seizures in children and adolescents presenting for emergency care: Current and emerging trends. *Clinical Toxicology*. 2013 Sep; 51(8): 761-766.

Finkelstein Y, Macdonald EM, Li P, Hutson JR, Juurlink DN. Recurrence and mortality following severe cutaneous adverse reactions. *JAMA-Journal of the American Medical Association*. 2014 Jun 4; 311(21): 2231-2232

Fischer JW and Kwan C. Emergency point-of-care ultrasound diagnosis of hematocolpometra and imperforate hymen in the Pediatric Emergency Department. *Paediatric Emergency Care* 2014; 30 (2): pp 128-130.

Freedman SB, Thull-Freedman J, Rumantir M, Eltorki M, Schuh S. Pediatric constipation in the emergency department: Evaluation, treatment and outcomes. *Journal of Pediatric Gastroenterology & Nutrition* 2014 May 1. [Epub ahead of print]

Freedman SB, Thull-Freedman J, Manson D, Follett Rowe M, Rumantir M, Eltorki M, Schuh S. Pediatric abdominal x-ray use, constipation, and significant misdiagnoses. *Journal of Pediatrics* 2014 Jan; 164(1): pp 83-88.

Freedman SB, Urquhart S, Schuh S, Sherman P, Farion K, Gouin S, Willan A, Goeree R, Johnson D, Black K, Schnadower D, Gorelick M. Impact of emergency department probiotic treatment of pediatric gastroenteritis: Study Protocol for the PROGUT (Probiotic Regimen for Outpatient Gastroenteritis Utility of Treatment) randomized controlled trial. *Trials* 2014 May 14; 15(1): pp 170. [Epub ahead of print].

Freedman S, Rumantir M, Uleryk E, Finkelstein Y. Ondansetron and the risk of cardiac arrhythmias: a systematic review and post-marketing analysis. *Annals of Emergency Medicine* 2014 Jul; 64(1): 19-25.

Glatstein M, Alabdulrazzaq F, Scolnik D: Belladonna alkaloid intoxication: The ten-year experience of a large tertiary care paediatric hospital. *Am J Ther* 2013 Nov 20 [Epub ahead of print].

Glatstein M, Danino D, Wolyniez I, Scolnik D: Seizures caused by ingestion of atropa belladonna in a homeopathic medicine in a previously well infant: case report & review of the literature. *Am J Ther* 2013 Oct 7 [Epub ahead of print].

Glatstein M, Scolnik D: Pediatric electrical burn injuries: experience of a large tertiary care hospital & a review of electrical injury. *Pediatr Emerg Care* 2013; 29 (6): pp 737-740.

Imazio M, Belli R, Brucato A, Ferrazzi P, Patrini D, Martinelli L, Polizzi V, Cemin R, Leggieri A, Caforio AL, Finkelstein Y, Hoit B, Maisch B, Mayosi BM, Oh JK, Ristic AD, Seferovic P, Spodick DH, Adler Y. Rationale and design of the COLchicine for Prevention of the Post-pericardiotomy Syndrome and Post-operative Atrial Fibrillation (COPPS-2 trial): A randomized, placebo-controlled, multicenter study on the use of colchicine for the primary prevention of the postpericardiotomy syndrome, postoperative effusions, and postoperative atrial fibrillation. *American Heart Journal*. 2013 Jul; 166(1): 13-19.

Khwaja OS, Ho E, Barnes KV, O'Leary HM, Pereira L, Finkelstein Y, Nelson CA. III, Vogel-Farley V, DeGregorio G, Holm IA., Khatwa U, Kapur K, Alexander ME, Finnegan DM, Cantwell N, Walco AC, Rappaport L, Gregas M, Fichorova RN, Shannon MW, Sur M, Kaufmann WE. Safety, pharmacokinetics, and preliminary assessment of efficacy of mecasermin (recombinant human IGF-1) for the treatment of Rett syndrome. *PNAS- Proceedings of the National Academy of Sciences*. 2014 Mar 25; 111(12): 4596601.

Kwan C, Doan Q, Howard A, Ouyang M, Oliveria JP, Boutis K. Fracture Severity in Overweight Versus Non-overweight Children Presenting to a Pediatric Emergency Department. *Journal of Pediatrics and Child Health*. 2014 May; 19(5): pp 251-255.

Lochhead A, Jamjoom R, Ratnapalan S. Intussusception in children presenting to the emergency department. *Clin Pediatr (Phila)* 2013; 52 (11): pp 1029-1033.

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Nigrovic LE, Schonfeld D, Dayan PS, Fitz BM, Mitchell SR, Kuppermann N. Nurse and physician agreement in the assessment of minor blunt head trauma. *Pediatrics* 2013 Sep; 132(3): e689-94. doi: 10.1542/peds.2013-0909.

O'Malley P, Barata I, Snow S, American Academy of Pediatrics Committee on Pediatric Emergency Medicine, American College of Emergency Physicians Pediatric Emergency Medicine Committee, and Emergency Nurses Association Pediatric Committee. Death Of A Child In The Emergency Department. *Ann Emerg Med*. 2014; 64: pp 102-105.

Ramakrishna J, Valani R, Sriharan A, Scolnik D: Design and pilot implementation of an evaluation tool assessing professionalism, communication, and collaboration during a unique global health elective. *Medicine, Conflict and Survival Journal* 2014; 30 (1): pp 56-65.

Ratnapalan S. Chloral Hydrate Sedation in Children. *Clin Pediatr (Phila)* 2013: Nov. [Epub ahead of print]

Ratnapalan S, Uleryk E. Organizational Learning in Health Care Organizations. *Systems* 2014; 2 (1): pp 24-33.

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Sabhaney V, Boutis K, Barra L, Tripathi R, Doan Q. The Effect of Body Mass Index on the Risk of Fractures in Children. *Journal of Pediatrics*. 2014 May 13. [Epub ahead of print].

Samuels-Kalow ME, Stack AM, Porter SC. Parental language and dosing errors after discharge from the pediatric emergency department. *Pediatric Emergency Care*. 2013 Sept; 29(9): pp 982-987.

Schonfeld D, Bressan S, Da Dalt L, Henien M, Winnett J, Nigrovic LE. Pediatric Emergency Care Applied Research Network (PECARN) head injury prediction rules are reliable in practice. *Archives of Disease in Childhood* 2014 May; 99(5): 427-31. doi: 10.1136/archdischild-2013-305004. Epub 2014 Jan 15

Schonfeld D, Fitz BM, Nigrovic LE. Effect of the duration of emergency department observation on computed tomography use in children with minor blunt head trauma. *Annals of Emergency Medicine* 2013 Dec; 62(6): pp 597-603. doi: 10.1016/j.annemergmed.2013.06.020

Tricco A.C., Antony J, Angeliki V.A., Ashoor H, Hutton B, Hemmelgarn B.R., Moher D, Finkelstein Y, Gough K, Straus S.E.. Safety and effectiveness of anti-retroviral therapies for HIV-infected women and their infants and children: Protocol for a systematic review and network meta-analysis. *Systematic Reviews*. 2014 May 25; 3(1): pp 51-56.

Tricco AC, Cogo E, Angeliki VA, Soobiah C, Hutton B, Hemmelgarn BR, Moher D, Finkelstein Y, Straus SE. Comparative safety of anti-epileptic drugs among infants and children exposed in utero or during breastfeeding: protocol for a systematic review and network meta-analysis. *Systematic Reviews*. 2014 Jun 25; 3(1): pp 68-73.

Tripathi R, Doan Q, Sabhaney V, Barra L, Tran K, Boutis K. Accuracy of the Weight-for-age Index in Identifying Obese Children in the Emergency Setting 2014. *Journal of Obesity Research*. Volume 2014; 558641; DOI: 10.5171/2014.558641.

<http://www.ibimapublishing.com/journals/OBES/2014/558641/a558641.html>

Wolyniez I, Rimon A, Scolnik D, Gruber A, Tavor O, Haviv E, Glatstein M: The effect of a medical clown on pain during intravenous access in the pediatric emergency department: a randomized prospective pilot study. *Clin Pediatr (Phila.)* 2013; 52 (12): pp 1168-1172.

Zemek R, Osmond M, Barrowman M, Boutis K et al. Predicting and Preventing Postconcussive Problems in Pediatrics (5P) study: protocol for a prospective multicentre clinical prediction rule derivation study in children with concussion. *British Medical Journal Open*. 2013; 3(8): pp e003550.

Books and Chapters

Fischer JW, Abo A, Sivitz A. Pediatric Applications. In: *Emergency Ultrasound 3rd Edition*. (Ma, J., ed.) McGraw-Hill 2013.

Fischer JW and Kwan C. Lumbar Puncture. In: *Case Studies in Pediatric Emergency and Critical Care Ultrasound*. (McLario and Kendall, ed.) Cambridge University Press 2013.

Fischer JW and Solano T. Bladder Aspiration. In: *Case Studies in Pediatric Emergency and Critical Care Ultrasound*. (McLario and Kendall, ed.) Cambridge University Press 2013.

Fischer JW. Ankle Block. In: *Case Studies in Pediatric Emergency and Critical Care Ultrasound*. (McLario and Kendall, ed.) Cambridge University Press 2013.

Fischer JW. Intercostal Nerve Block. In: *Case Studies in Pediatric Emergency and Critical Care Ultrasound*. (McLario and Kendall, ed.) Cambridge University Press 2013.

Schneeweiss S. Pain and Sedation of Children in the Emergency Setting. In: *The Encyclopedia of Pain*, 2nd Edition (Schmidt RF, Gebhart GF, eds). Springer Verlag, Berlin Heidelberg, 2013: pp2572-2576.

Schuh S. Bronchiolitis. In: *Rosen and Barkin's 5-Minute Emergency Medicine Consult*. Lippincott Williams & Wilkins, 2013. Invited expert state of the art review of therapy of this common disease.

Grants and Funding

Internal

A Deliberate Practice Method for Learning the Spectrum of Physical Examination Findings in Child Sexual Abuse. Boutis K (PA), David A, Pecaric M, Pusic M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$6,000 CAD. January 2014-January 2015

A Feasibility Study on D-dimer Testing to Rule Out Venous Thrombotic Events in Children. L Brandao, C Sabapathy, Y Finkelstein, S Schwartz, V Chan, L Trotier, W Brien. **Pediatric Consultants Partnership Grant for Creative Professional Activity, The Hospital for Sick Children**. \$10,000 CAD. July 2013-June 2015

A Survey of Primary Care Pediatricians on the Management of Common Pediatric Fractures in the primary care office. Koelink E, Geller C, Boutis K. **Residency Training Start Up Fund, The Hospital for Sick Children**. \$3,000 CAD. June 2013-May 2014

Accuracy of point-of-care ultrasonography in pediatric ankle sprain injuries. Boutis K, Fischer J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$4,000 CAD. January 2013 – December 2014

Cellular Toxicity after Anesthetic Exposure for Short Surgical Procedures and Identification of Attenuating Agents in Young Children: An Innovative, Translational Pilot Study. Maynes JT, Finkelstein Y, Boutis K. **Innovation Fund, The Hospital for Sick Children**. \$8,000 CAD. October 2012-December 2014

Climbing the Learning Curve – Teaching the Medical Learner how to Interpret Pediatric Electrocardiograms. Etoom Y, Boutis K, Pusic M, Pecaric M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$6,000.00 CAD. March 2014

Climbing the Learning Curve – Teaching the Paediatric Emergency Physician How to Interpret Point-of-Care Ultrasound Images. Kwan CW, Boutis K. **Faculty Development Award, Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$3500 CAD. December 2013 – December 2014

D-PRIME: (Deliberate Practice of Image Interpretation in Medical Education). Boutis K, Pusic M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$7,760 CAD. January 2013-December 2013

Implementation of an emergency response team within a pediatric emergency department. Principi T, Etoom Y, Boutis K, Yasovich N, Capstick C, Mills R, Thull-Freedman J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$5750 CAD. January 2013 – December 2014

Ketamine Neurotoxicity in Children undergoing Procedural Sedation. Finkelstein Y, Boutis K, Hutchison J, Maynes J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$7,500 CAD. January 2012-December 2013

Pediatric Emergency Ultrasound Diagnosis of Ankle Sprains. Boutis K, Fischer J, Kwan C, Solano T, Desjardins MP, Stimec J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$7,000 CAD. January 2013-December 2013

Putting the Pieces Together – Distal radius buckle fractures from the ED to the PCP. Koelink E, Boutis K, Schuh S, Howard A, Fregonas C, Stimec J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$7,000 CAD. January 2013-December 2013

Radiation Exposure From Diagnostic Imaging: What the Clinician Needs to Know to Have Informed Risk/Benefit Discussions with Parents. Boutis K, Thomas K. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children**. \$7,000 CAD. January 2014-January 2015

Radiation Exposure From Diagnostic Imaging: What the Clinician Needs to Know to Have Informed Risk/Benefit Discussions with Parents. Boutis K, Thomas K. **Innovation Fund, The Hospital for Sick Children**. \$10,000 CAD. March 2014-March 2015

The Deliberate Practice of Pediatric ECGs. Boutis K, Etoom Y, Pecaric M, Pusic M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$6,000 CAD. January 2014-January 2015

Validating an On-line Learning Intervention that Teaches the Interpretation of Pediatric Electrocardiograms. Boutis K, Pusic M, Pecaric M, Etoom Y. **Department of Pediatrics, Pediatric Consultants, Innovation Fund. The Hospital for Sick Children.** \$5,000 CAD. January 2014-January 2015

Which pediatric trauma patients do not require chest radiographs? Schuh S, Weerdenburg K, Wales P, Aisup J. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$4,800 CAD. December 2013-June 2014

External

5-HT3 Antagonists (Antiemetics) and Cardiac Safety, Using an Active Surveillance Approach. Carleton B, Ross C, Koren G, Ito S, Hayden M, Rieder M, Rassekh R, vonDadelszen P, Whyte S, Sanatani S, Freedman S, Finkelstein Y. **Canadian Institute of Health Research (CIHR) 2013 competition.** \$425,000 CAD. April 2013-March 2015

Bupropion vs. Antidepressants: the Risk of Seizures. Y Finkelstein, E McDonald, J Hutson, M Mamdani, D Juurlink. **Canadian Drug Safety and Effectiveness Research Network (CDSERN-funded by CIHR DSEN Emerging Teams).** \$15,000 CAD. July 2013-June 2015

Cellular toxicity of anaesthetics in children with mitochondrial disease. Finkelstein Y, Hutson J, Boutis K, Maynes J. **British Columbia Children's Hospital Foundation (BCCHF) and Rare Disease Foundation Award.** \$3,500 CAD. January 2012 – December 2013

Climbing the Learning Curve – Teaching the Paediatric Emergency Physician How to Interpret Point-of-Care Ultrasound Images. Kwan CW, Boutis K. **Young Investigator Award, Academic Pediatric Association.** \$10,000 CAD. January 2014 – March 2015

Comparative Effectiveness of Emergency Ultrasound Guided Management of Pediatric Soft Tissue Infection. Lam S and Fischer JW. **ACEP Section Grant.** \$3000 USD. June 2013 – December 2015

Development of novel clinical tests to diagnose and monitor asthma in preschool children. Boutis K, Stanojevic S. **Ontario Thoracic Society.** \$92,335 CAD. November 2013-December 2015

Dose-Response Efficacy and Safety of IGF-1 in Girls with Rett Syndrome. Finkelstein Y, Khwaja O, Rappaport L, Holm I, Sur M, Gregas M. **2011 Ontario Rett Syndrome Association Research Grant Award.** \$25,000 CAD. January 2011-December 2013

How safe are our pediatric emergency departments? A national prospective cohort study. Plint A, Calder L, Stang A, Bhatt M, Johnson D, Klassen T, Farion K, Gouin S, Doan Q, Boutis K, Sawyer S, Newton A. **CIHR, Operating Grant Investigators.** \$1,129,364 CAD. February 2014-January 2018

Inhaled magnesium in refractory pediatric acute asthma. Schuh S, Johnson D, Plint A, Zemek R, Beer D, Willan AR, Guimont C, Black K, Thompson G, Ducharme F, Coates A, Freedman SB. **Thrasher Research Foundation.** \$500,920 CAD. September 2011-May 2014

Intentional Self Poisoning: inferences from a population. Finkelstein Y, Sivilotti M, McDonald E, Hollands S, Hutson J, Mamdani M, Juurlink D. **Canadian Drug Safety and Effectiveness Research Network (CDSERN-funded by CIHR DSEN Emerging Teams).** \$45,000 CAD. April 2013-March 2015

Is this best taught using simulation? Using the delphi method to develop the framework for a national general pediatric simulation-based training curriculum. Langevin M, Drover A, Banks I, Pirie J, Shefrin A. **Resident Funding, CHEO Research Institute.** \$2,000 CAD. August 2012-July 2014

Learning the Interpretation of Point of Care Emergency Ultrasound Images. Kwan C, Boutis K, Fischer J, Pecaric M, Pusic M. **Academic Pediatric Association.** \$10,000 CAD. March 2014-May 2015

MAGnesium Nebulization Utilization Management in Pediatric Asthma (MAGNUM PA Trial). Schuh S (PI), Zemek, R, Plint A, Johnson DW. Freedman S, Thompson G, Ducharme F, Gravel J, Klassen T, Curtis S, Beer D, Black K, Coates A, Willan A. **Canadian Institutes of Health Research.** \$2,137,058 CAD. October 2013 – September 2018

MAGnesium Nebulization Utilization Management in Pediatric Asthma (MAGNUM PA Trial). Schuh S (PI), Zemek, R, Plint A, Johnson DW. Freedman S, Thompson G, Ducharme F, Gravel J, Klassen T, Curtis S, Beer D, Black K, Coates A, Willan A. **PSI.** \$170,000 CAD. June 2014 – October 2016

Parental Knowledge of Trampoline Safety. Beno S, Ackery A, Boutis K. **Pashby Foundation.** \$10,000 CAD. June 2013-May 2014

“Pathogen specific effectiveness of probiotics in children with acute gastroenteritis.” Freedman S, Finkelstein Y, Lee Chui L, Lee B, Louie M, Netter-Aguirre A, Pang X. **Canadian Institute of Health Research (CIHR) 2014 Operating Grant Open Competition.** \$607,892 CAD. May 2014-April 2018

Pharmacogenetic Predictors of Toxicity and Cognitive Deficits among Leukemia Survivors. Cole P, Finkelstein Y, Waber D, Dahlberg S. **St. Baldrick's Foundation 2012 Research Grant.** \$50,000 US. January 2012-December 2014

Pharmacogenomic Determinants of Ketamine Neurotoxicity in Young Children. Finkelstein Y, Boutis K, Hutchison J, Post M, Soriano S, Kim R. **McLaughlin Centre for Genomic Medicine 2012 Accelerator Grant, University of Toronto.** \$50,000 CAD. January 2012-December 2015

Pharmacological Treatment of Rett Syndrome by Stimulation of Synaptic Maturation with IGF-1. Khwaja O, Shannon M, Rappaport L, Holm I, Sur M, Gregas M, Finkelstein Y. **Harvard University's Catalyst Pilot Grant for Clinical and Translational Research.** \$50,000 US. January 2011-December 2013

Pharmacological Treatment of Rett Syndrome by Stimulation of Synaptic Maturation with IGF-1. Khwaja O, Shannon M, Rappaport L, Holm I, Sur M, Gregas M, Finkelstein Y. **International Rett Syndrome Association.** \$200,000 US. January 2011-December 2013

Point-of-care ultrasound-guided axillary nerve block versus procedural sedation for the reduction of forearm fractures in the Pediatric Emergency Department. McLean L, Bhatt M, Fischer JW. **CAEP 2014 Research Grant Competition.** \$5000 CAD. January 2014 – December 2015

Predicting Persistent Postconcussive Problems in Pediatrics (5P). Zemek R, Anderson P, Barlow K, Barrowman N, Boutis K, DeMatteo C, Farion K, Freedman S, Gagnon I, Gravel J, Hoshizaki B, Keightley M, Klassen T, Meeuwisse W, Meehan W, Mikrogianakis A, Vassilyadi M. **Canadian Institutes of Health Research.** \$1.273 million CAD. March 2013-February 2018

Preliminary Examination of the Impact of Cyclophosphamide Pharmacokinetic Variability on Outcomes in Paediatric Hematopoietic Stem Cell Transplantation. Schechter T, Dupuis L, Doyle J, Gassas A, Egeler M, Kim R, Finkelstein Y. **The Garron Family Cancer Centre 2012 Small Grant Competition, The Hospital for Sick Children.** \$46,323 CAD. March 2012-March 2014

Rapid Funding for Drug Safety and Effectiveness Network Targeted Research: Darunavir and congenital malformations, using a network meta-analysis approach. Straus S, Cricco A, Beyene J, Finkelstein Y, Hemmelgarn B, Hutton B, Moher D, Perrier L. **Canadian Institute of Health Research (CIHR) 2013 competition.** \$100,000 CAD. September 2013-August 2015

Rapid Funding for Drug Safety and Effectiveness Network Targeted Research: Levetiracetam and Developmental Toxicity, using a network meta-analysis approach. Straus S, Cricco A, Beyene J, Finkelstein Y, Hemmelgarn B, Hutton B, Moher D, Perrier L. **Canadian Institute of Health Research (CIHR) 2013 competition.** \$100,000 CAD. September 2013-August 2015

Salter-Harris I fracture of the distal fibula: Clinical versus reality. Boutis K, Narayanan U, Schuh S, Plint A, Stimec J, Miller E, Brison R. **Physician Services Incorporated.** \$170,000 CAD. May 2012-June 2014

Severe influenza in infants, children and youths: Role of clinical and epidemiologic risk factors. Tran D, Bettinger J, Ipp M, Mcgreer A, Richardson S, Schuh S, Dery P, Le Saux N, Moore D, Salvadori M, Vaudry W, Gubbay J, Loeb M, O'Connor D, Sauve L. **Canadian Institutes of Health Research.** \$241,553 CAD. April 2012-April 2016

Strengthening Transitions in Pediatric Emergency Care: A Qualitative Study. Curran J, Fitzpatrick E, Chorney J, Murphy A, Porter S, MacPhee S, McNeil K. **Canadian Institutes of Health Research: Regional Partnership Program – Nova Scotia.** \$436,287 CAD. April 1-2013-March 3-2016

The Burden of Severe Drug-Induced Adverse Reactions. Finkelstein Y, To T, Hutson J, Mamdani M, Juurlink D. **Canadian Drug Safety and Effectiveness Research Network (CDSERN-funded by CIHR DSEN Emerging Teams).** \$15,000 CAD. April 2013-December 2014

The Pharmacokinetics of Antibiotics Delivered in the Emergency Department Setting. Scolnik D, Finkelstein Y, Tessaro M. **Apotex Fund.** \$15,000 CAD. January 2011-December 2015

Translating Emergency Knowledge For Kids (TREKK). Klassen T, Hartling L, Jabbour M, Johnson D, Porter S, Scott S, Sinclair D, Lang E, Freedman SB, Black B, Gouin S, Stang A. **Networks of Centres of Excellence (NCE) Program-Knowledge Mobilization.** \$1,200,000 CAD. January 1-2011-December 31-2015.

What happens to oxygen saturation after discharge in outpatients with acute bronchiolitis? Principi T, Schuh S, Stephens D, Coates A. **Canadian Association of Emergency Physicians.** \$4,890 CAD. December 2008-May 2014

What happens to oxygen saturation after discharge in outpatients with acute bronchiolitis? Principi T, Schuh S, Stephens D, Coates A. **Physician Services Incorporated.** \$20,000 CAD. December 2008-May 2014

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 Syed Azmat
 (Academic Project Coordinator)



endocrinology

Lori Brnjac, Irena Hozjan, Bailie Tabak, Cheryl Ryans and Virginia Wilkins

Divisional Overview

2013-2014 was another productive year for the Division of Endocrinology.

We continued to provide high quality, comprehensive care for children and youth with a wide variety of endocrine disorders. These efforts include care for patients with (i) diabetes, including type 1 and type 2 diabetes, diabetes that results from medications such as glucocorticoids, and diabetes secondary to cystic fibrosis; (ii) general endocrine disorders, including growth, thyroid disease, disorders of sex development, pubertal disorders and reproductive health concerns; (iii) abnormalities of calcium metabolism and bone health; and (iv) endocrine cancers, including thyroid cancer, adrenal cortical carcinoma, and pheochromocytoma. In October of 2013, the Division expanded our clinical activities to include care for youth with gender dysphoria in the SickKids new Trans Youth Clinic.

The Division of Endocrinology is highly collaborative and is engaged in joint clinical programs with care providers from many different disciplines. Ongoing collaborations exist with social work, general pediatrics, general surgery, urology, genetics, oncology, orthopedic surgery, psychology, nuclear medicine, and respirology. The interdisciplinary medical-surgical SickKids Team Obesity Management Program (STOMP) continues to flourish, and, within Endocrinology, the Section of Paediatric and Adolescent Gynecology provides care to pre-teen and adolescent girls with gynecology disorders and to pregnant adolescents. The new Trans Youth Clinic was developed in collaboration with colleagues in the Division of Adolescent Medicine.

In addition to clinical care, the Division of Endocrinology continued our efforts to train future endocrinologists from Canada and around the world. This year, we had eight trainees in our subspecialty training program: five from Canada, one from Venezuela, one from the Netherlands and one from Australia.

The Division also maintained a substantial focus on research, with faculty having now secured several million dollars of funding. Diabetes remained the area of greatest focus with involvement in (i) prediction and prevention of type 1 diabetes through involvement in the multinational TrialNet and TRIGR study groups; (ii) implications and treatment of insulin resistance and obesity among children and adolescents; (iii) the evolution of obesity and insulin resistance in young children; and (iv) prevention and treatment of the medical complications of diabetes. Our Juvenile Diabetes Research Foundation (JDRF)-sponsored Canadian Clinical Trial Network (CCTN) site is also very active, with three ongoing studies.

Newer research initiatives include the use of smart phones to help adolescents with the management of type 1 diabetes and studies regarding how sex steroids (estrogen and testosterone) affect brain development and contribute to male-female differences in cognition and in susceptibility to mental health disorders. Other areas of increased focus include endocrine cancers, such as adrenal and thyroid cancers, and a newly funded program directed at understanding how epigenetic factors may regulate the timing of puberty.

Honours and Awards

Allen, L: Awarded for Best Grand Rounds Presentation given by an external speaker for "Gynecological Emergencies" (scoring 4.94), Division of Pediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Allen, L: Named as one of "Toronto's Best Doctors" in Toronto Life Magazine (30 selected from a polling of 1000 Toronto doctors) Toronto, Ontario, March 2014

Daneman, D: Winner of Lifetime Achievement Awards, Clinical and Scientific Section of the Canadian Diabetes Association, Toronto, Ontario, 2013

Daneman, D: DSc (Med), University of the Witwatersrand, Johannesburg, South Africa (by publication), Contributions to Type 1 Diabetes in children and youth: understanding the natural history of Type 1 Diabetes and its complications in children and youth, Toronto, Ontario, 2013

Koltin, D: Winner of Lionel Weinstein Clerkship Teaching Award for Excellence in Teaching, Department of Paediatrics, University of Toronto. Toronto, Ontario, 2013-2014

Hamilton, J: Award for Outstanding Clinical Contribution for Clinical Excellence in Pediatric Medical Care, Department of Pediatrics, University of Toronto, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Hamilton, J: Winner of Lilac Award: Turner Syndrome Society President's Volunteer Award for promoting public awareness. Toronto, Ontario, May 24, 2014

Hamilton, J: Named as one of "Toronto's Best Doctors" in Toronto Life Magazine (30 selected from a polling of 1000 Toronto doctors). March 2014

Palmert, MR: Winner of 8th Annual Dr. Noni MacDonald Award (given to one article published each year by Paediatrics and Child Health that made an important contribution to paediatric practice (awarded to collaborative group for work re: development of new growth charts in 2013)

Publications

Aitken K, Cram J, Raymond E, Okun N, Allen L, Windrim R. "Mobile" medicine: a surprise encounter with placenta percreta-image of the month. *Journal of Obstetrics and Gynaecology Canada* 2014; 36 (5): pp 378.

Avis LS, Buchholz A, Bridger T, Chanoine JP, Hadjiyannakis S, Hamilton J, Jetha MM, Legault L, Morrison K, Wareham A, Ball GDC. It's like rocket science...only more complex: challenges and experiences related to managing pediatric obesity in Canada. *Expert Review of Endocrinology and Metabolism* 2014; 9 (3) pp 223-229.

Bandsma RHJ, Sokollik C, Chami R, Cutz E, Brubaker PL, Hamilton JK, Perlman K, Zlotkin S, Sigalet DL, Sherman PW, Martin GM, Avitzur Y. From diarrhea to obesity in prohormone convertase 1/3 deficiency: age-dependent clinical, pathologic, and enteroendocrine characteristics. *Journal of Clinical Gastroenterology* 2013 (Nov-Dec): 47(10): pp 834-843.

Birken C, Hamilton J. Managing obesity in a young child. *Canadian Medical Association Journal* April 2014: 186 (6): pp 443-444.

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Cheetham T. Editorial: Simplifying and refining and assessment of early puberty. *Archives of Diseases in Childhood* 2014; 99 (1): pp 3-4.

Cherney DZI, Reich H, Scholey JW, Daneman D, Mahmud F, Har RLH, Sochett EB. The effect of Aliskiren on urinary cytokine/chemokine responses to clamped hyperglycaemia in type 1 diabetes. *Diabetologia* 2013; 56: pp 2308-2317.

Chu L, Riddell MC, Schneiderman JE, McCrindle BW, Hamilton JK. The effect of puberty on fat oxidation rates during exercise in overweight and normal weight girls. *Journal of Applied Physiology* 2014; 116 (1): pp 76-82.

Cohen M, Syme CA, Wells GD, Deforest M, Detzler G, Cheng HM, McCrindle BW, Hanley AJ, Hamilton JK. Ectopic fat in youth: the contribution of hepatic and pancreatic fat to metabolic disturbances. *Obesity* 2014; 22 (5): pp 1280-1286.

Daneman D, Kellner J, Bernstein M, Dow K, Dugas MA, Duffy C, Eddy A, Filler G, Frappier JY, Gilmour S, Givelichian L, Huang L, Rochman-Greenberg C, Shevell M, Vardy C, Waiti H, Orrbine E, Williams M. Social paediatrics: from 'lip service' to the health and well-being of Canada's children and youth. *Paediatric Child Health* 2013 (Aug): 18 (7): pp 351-352.

Davies DA, Hamilton J, Dettmer E, Birken C, Jeffery A, Hagen J, Anvari M, Langer JC. Adolescent bariatric surgery: the Canadian perspective. *Seminars in Pediatric Surgery* 2014; 23 (1): pp 31-36.

El Zein M, Vali R, Manson D, Charron M, Perlman K, Shammas A. Neuroendocrine tumor in liver with positive ACTH receptor: a case report. *Journal of Pediatric Hematology Oncology* 2014; 36 (1): e1-4.

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Har R, Scholey JW, Daneman D, Mahmud FH, Dekker R, Lai V, Elia Y, Fritzler ML, Sochett EB, Reich HN, Cherney DZ. The effect of renal hyperfiltration on urinary inflammatory cytokines/chemokines in patients with uncomplicated type 1 diabetes mellitus. *Diabetologia* 2013; 58 (5): pp 1166-1173.

Harrington J, Palmert MR, Hamilton J. Use of local data to enhance uptake of published recommendations: an example from the diagnostic evaluation of precocious puberty. *Archives of Disease in Childhood* 2014; 99(1): pp 15-20.

Hill DJ, Prapavessis H, Shoemaker JK, Jackman M, Mahmud FH, Clarson C. Relationship between birth weight and metabolic status in obese adolescents. *ISRN Obesity* 2013; 2013 (2013): Article ID 490923.

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Kew S, Hamilton JK, Ye C, Hanley AJ, Zinman B, Retnakaran R. Vitamin D status and cardio-metabolic assessment in infancy. *Pediatric Research* 2013; 74 (2): pp 217-222.

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Zuijdwijk C, Cuerden M, Mahmud FH. Social determinants of health in pediatric type 1 diabetes. *Journal of Pediatrics* 2013; 162(4): pp 730-735.

Books and Chapters

Palmert MR, Dunkel L, Witchel SF. Puberty and its disorders in the male. In: *Pediatric Endocrinology* (4th ed) (Sperling MA, ed). Elsevier 2014: Chapter 17: pp 697-733.

Grants and Funding

Adolescent type 1 diabetes cardio-renal intervention trial, AdDIT. Daneman D, Mahmud F, Sochetti E, Curtis J. **Heart & Stroke Foundation of Ontario.** \$353,950 CAD. July 1-2009-July 1-2013

Adolescent type 1 diabetes cardio-renal intervention trial, AdDIT. Daneman D, Mahmud F, Sochetti E, Curtis J. **Cambridge, London, United Kingdom Subcontract-Juvenile Diabetes Research Foundation.** \$379,932.50 USD. September 1-2007-August 30-2012, Extension \$28,811 USD. September 1-2012 – April 30-2016

Adolescent type 1 diabetes cardio-renal intervention trial, AdDIT. Daneman D, Mahmud F, Sochetti E, Curtis J. **British Heart Foundation.** £60,800 GBP March 27-2008-March 26-2013, Extension to no defined dollar amount until March 26-2017

Adolescent type 1 diabetes cardio-renal intervention trial, AdDIT. Ancillary study: urinary inflammatory markers in adolescents with type 1 diabetes. Mahmud F, Daneman D, Sochetti E, Curtis J, Bradley T, Cherney D, Reich H, Scholey J. **Juvenile Diabetes Research Foundation-Canadian Clinical Trial Network.** \$3,657,088.22 CAD. March 1-2011-February 28-2016

A randomized controlled trial to evaluate the efficacy and safety of a gluten-free diet in patients with asymptomatic celiac disease and type 1 diabetes. Celiac and Diabetes: Dietary Intervention and Evaluation Trial (CD DIET). Mahmud FH, McDonald C, Gallego P, Lawson M, Perkins B, Gilbert J, Mukerji G, Lipscombe L, Koltin D, Simone A, Parikh A, Leiter L, Kirsch S, Houlden R. **JDRF Canadian Clinical Trial Network (CCTN)**. \$3,200,000 CAD. January 1-2012-December 31-2015

An early developmental model of overeating, obesity and executive dysfunction. Levitan R, Meany M, Davis C, Dubé L, Gruber R, Hamilton J, Kennedy J, Matthews S, Soares C, Steiner M. **Canadian Institutes of Health Research**. \$763,130 CAD. April 1-2010-March 31-2015

Assessment of an electronic self-management tool on glycemic control in teens with type 1 diabetes. Palmert MR, Cafasso J, Katzman D, Skinner H, Rotondi M. **Thrasher Research Fund**. \$435,700 CAD. January 1-2013-December 31-2015

CANadian pediatric weight management registry (CANPWR). Identifying the characteristics of successful change in Canadian pediatric weight management programs. Morrison K, Hamilton J, Ball G, Berall G, Buchholz A, Chanoine JP, Legault L, Thabane L, Tremblay M. **Canadian Institutes of Health Research**. \$943,636 CAD. September-1 2012-August 31-2017

Cardiometabolic risk, obesity and the microbiome: development over the first two years of life in children exposed to gestational diabetes in utero. Hamilton J, Retnakaran R, Hanley AJ, Zinman B, Parkinson J, Comelli E. **Heart and Stroke Foundation of Canada**. \$263,561 CAD. June 1-2014-May 31-2017

Deciphering the bases of sex differences in the brain and their role in psychiatric disorders. Palmert MR, Lerch J, Arnold P, Foster J. **Canadian Institute of Health Research (CIHR)**. \$779,590 CAD. October 1-2012-September 30-2017

Early identification of cardiac dysfunction in obese adolescents: mechanisms and modulation. Wells G, Banks L, McCrindle B, Hamilton J, Sneed M, Noseworthy L, Mertens L. **Canadian Institutes of Health Research**. \$100,000 CAD. October 1-2013-September 30-2014

Epigenetic changes in DNA infants exposed to gestational diabetes in utero. Hamilton J, Palmert MR. **Canadian Diabetes Association**. \$272,967 CAD. July 1-2012-June 3-2015

Food intake control in children. Anderson GH, Hamilton J, Luhovyy B, Thomas S. **Canadian Institutes of Health Research**. \$660,000 CAD. September 1-2010-August 31-2015

Genome wide DNA methylation alterations in infants exposed to gestational diabetes in utero. Hamilton J, Retnakaran R, Hanley A, Palmert M, Weksberg R. **Canadian Diabetes Association**. \$272,973 CAD. May 1-2012-June 30-2015

Growth hormone therapy and bone quality in paediatric osteoporosis. Sochett EB, Grynepas M. **Eli Lilly**. \$125,000 CAD. March 1-2006-February 28-2014

Health care utilization following thyroid cancer diagnosis in childhood. Wasserman J. **POGO Research Unit Seed Funding Grant**. \$15,000 CAD. April 15-2013-April 15-2014

Initiative to Maximize Progress in AYA Cancer Therapy (IMPACT). Nathan P, Baxter N, Wasserman J. **CIHR Operating Grant**. \$913,870 CAD. Jan 1-2014-December 31-2018

Male-female differences in pubertal timing: use of perturbations of the lin28/let-7 axis to examine mechanisms. Palmert MR, Wilson M, Goldenberg A. **Canadian Institute of Health Research (CIHR)**. \$556,000 CAD. April 1-2014-March 31-2018

MiTy Kids (Metformin in women with type 2 diabetes in pregnancy kids trial). Feig D, Hamilton J, Haqq A, Asztalos E, Ohlsson A, Murphy K, Lee S, Ryan E, Zinman B, Fantus G, Tomlinson G, Lipscomb L, Armson A. **Canadian Institutes of Health Research**. \$1,299,072 CAD. January 1-2012-December 31-2017

OPTIMOM: Programmatic grants in food and health. O'Connor D, Unger S, Doesburg S, Hamilton J, Miller S, Pencharz P, Rovet J, Shah P, Stintzi A, Taylor M. **Canadian Institutes of Health Research**. \$1,999,672 CAD. October 1-2013-November 30-2018

PROMOTE: Preschoolers at Risk-Obesity trajectories & cardiometabolic factors: towards early identification. Birken C, Adeli K, Hamilton K, Hanley A, Maguire J, Mamdani M, McCrindle B, Parkin P, Thorpe K. **Canadian Institutes of Health Research**. \$645,963 CAD. January 1-2011-December 31-2014

Simultaneous versus delayed initiation of real-time continuous glucose monitoring in children and adolescents with type 1 diabetes starting insulin pump therapy (CGM TIME Trial "timing of initiation of continuous glucose monitoring in established pediatric diabetes). Mahmud F, Curtis J. **JDRF Canadian Clinical Trials Network**. \$400,532 CAD. August 1-2011-March 31-2015

Talking with children and families about weight-related issues: a scoping review of best practices. McPherson AC, Hamilton J, Swift JA, Ball GDC, Steinberg A, Chen L, Philpott J. **Canadian Institute of Health Research**. \$47,180 CAD. January 1-2013-December 31-2014

The genetics and neuroendocrinology of short stature (GeNeSIS). Hamilton J. **Lilly International Growth Study**. \$358,542 CAD. March 1-2002-April 30-2015

The hyperglycemia and adverse pregnancy outcome (HAPO) follow-up study. Metzger B, Hamilton J. **National Institutes of Health**. \$794,918 CAD. January 1-2012-December 31-2017

TRIGR (Trial to reduce insulin-dependent diabetes in the genetically at risk). Daneman D. **National Institute of Health**. \$450,000 CAD. July 1-2012-June 30-2017

Type 1 diabetes TrialNet: Toronto Clinical Centre. Wherrett DK. **National Institute of Health**. \$535,000 CAD. May 1-2013-April 30-2014

Staff

Division Head

Dr. Mark R. Palmert

Full-Time

Dr. Denis Daneman

Dr. Jill Hamilton

Dr. Farid Mahmud

Dr. Kusiel Perlman

Dr. Etienne Sochett

Dr. Jonathan Wasserman

Dr. Diane Wherrett

Part-Time

Dr. Jacqueline Curtis

Dr. Susan Kirsch

Dr. Dror Koltin

Dr. Stacey Urbach

Gynecology

Dr. Anjali Aggarwal

Dr. Lisa Allen (Section Head)

Dr. Nicolette Caccia

Dr. Yolanda Kirkham

Dr. Sari Kives

Dr. Alexandra Nevin Lam

Dr. Rachel Spitzer

Honorary

Dr. Robert Ehrlich

Clinical Fellows- Endocrinology

Dr. Allison Bahm

Dr. Sanjukta Basak

Dr. Dr. Andrea Ens

Dr. Jennifer Harrington

Dr. Mark Inman

Dr. Isaac Levy

Dr. Rayzie Shulman

Dr. Danielle van der Kaay

Clinical Fellows – Gynecology

Dr. Nicole Hubner

Administrative Staff

Saeedah Ahamad

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Suzanne Dionisio

Angela Edo

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Mary Mathew

Tymone Roberts

Elizabeth Rodgers

Minet Smith

Zarine Tilak



gastroenterology/ hepatology/nutrition

Peter Church, Marialena Mouzaki and Robert Bandsma

Divisional Overview

GI/Hepatology/Nutrition is a very multi-faceted Division, which as a whole has responsibility for and expertise in a wide spectrum of acute and chronic luminal, hepatologic, and exocrine pancreatic disorders, performs diagnostic and therapeutic endoscopic procedures and oversees Nutritional support services within the hospital. Its 13 full-time faculty are committed to excellence in clinical care, to integration of care and research to the benefit of patients, and to education of the next generation of academic subspecialists and investigators.

Integration of clinical care and research is undertaken within multi-disciplinary Divisional Programs, notably in inflammatory bowel disease (IBD); hepatology; liver transplant; intestinal rehabilitation; clinical nutrition. Additional individual faculty interests include exocrine pancreatic disease, foregut motility disorders, celiac disease and gastrointestinal disorders associated with autism.

Clinical activity is high in both the in-patient and ambulatory settings. Hospitalized patients under the primary care of Divisional faculty and fellows are organized into the “GI” service (predominantly IBD); the liver transplant service; and the GIFT (group for intestinal failure therapy) service. Together these 3 services comprise the major proportion of patient days on the “Medical subspecialties” in-patient unit. Meanwhile, total ambulatory clinic visits have totaled over 6700 and ambulatory endoscopic procedures over 1500. Specialized and skilled nursing and dietetic professionals play key roles in ambulatory patient care.

Research by Divisional faculty is undertaken in individual laboratories (Drs. Bandsma; Gonska; Jones; Kamath; Muise; Sherman) and in affiliation with 3 different SickKids Centres of Excellence (Cystic Fibrosis; IBD; Transplant and Regenerative Medicine).

In an era where multicentre collaborative patient-based and translational research is so necessary, Divisional faculty maintain several key leadership roles in national and international research consortia. Drs. Binita Kamath and Vicky Ng have leadership positions in “CHILDREN” (the NIH-funded Childhood Liver Disease Research and Education Network). Dr. Simon Ling leads international portal hypertension studies and collaborates in the Hepatitis B Research Network and the Cystic Fibrosis Liver Disease Network. Drs. Yaron Avitzur and Vicky Ng participate in innovative research collaborations in the Pediatric Acute Liver Failure network, including iWITH, a multi-centre study of immune-suppression withdrawal in selected survivors of liver transplantation. Dr. Tanja Gonska contributes importantly to cutting-edge translational studies, including examination of pharmacologic means of ameliorating defective Cystic Fibrosis gene function. Dr. Aleixo Muise co-leads an international consortium in the exciting study of very early onset IBD with funding from the Helmsley Foundation and CIHR. Dr. Thomas Walters is on the executive steering committee of the NIH-funded PROTECT study in new onset ulcerative colitis. Dr. Anne Griffiths leads the Canadian Children IBD Network: a joint partnership of CIHR and the C.H.I.L.D. Foundation.

Honours and Awards

Amir, A: Winner of The Canadian Society of Transplantation Pediatric Transplant Abstract Award, Toronto, Ontario, 2014

Avitzur, Y: Winner of the Teaching and Mentorship Award, Division of Gastroenterology, Hepatology and Nutrition, The Hospital for Sick Children, Toronto, June 2014

Bandsma, R: Winner of the Naspghan-Nestle Nutrition Young Investigator Development Award, Chicago, US, September 2013

Burghardt, K: Winner of the Young Investigator and Travel Award, World Transplant Congress, June 2014

Jones, NL: Winner of the Education Excellence Award, Canadian Association of Gastroenterology, Toronto, Ontario, January 2014

Muise, A: Winner of the New Investigator Partnership Prize, Institute of Nutrition, Metabolism and Diabetes (INMD), Canadian Institute of Health Research, Toronto, Ontario, February 2014.

Muise, A: Winner of the Young Investigator Award, Canadian Association of Gastroenterology, Toronto, Ontario, February 2014

Sharma, AJ: Winner of the Best Clinical Trial Design Award, North American Society for Pediatric Gastroenterology, Hepatology and Nutrition, Fort Lauderdale, Florida, October 2013

Sherman, P: Winner of the Fellow of the Canadian Association of Gastroenterology, Toronto, Ontario, March 2014

Sherman, P: Winner of the Career Research Excellence Award, Department of Paediatrics, The Hospital for Sick Children, University of Toronto, Toronto, Ontario, May 2014

Valentino, P: Winner of CHES Exceptional Trainee award, 2014

Walsh, C: Winner of the Poster of Distinction Award, North American Society for Pediatric Gastroenterology, Hepatology and Nutrition, Philadelphia, USA, October 2013

Walters, TD: Winner of the Best Clinical Research Paper 2013, Second Annual Discovery Forum, The Hospital for Sick Children, Toronto, Ontario, April 2014

Publications

Abrahamsson TR, Sherman PM. Multi-faceted effects of human milk oligosaccharides (editorial). *Journal of Infectious Diseases* 2014: 209: pp 323-324.

Adedokun O, Xu Z, Damaraju L, Blank M, Johanns J, Griffiths AM, Ford J, Zhou H, Guzzo C, Davis HM, Hyams J. Pharmacokinetics of infliximab in children with moderate-to-severe ulcerative colitis: Results from a randomized, multicenter, open-label, phase 3 study. *Inflammatory Bowel Diseases* 2013: 19 (13): pp 2753-2762.

Al Fawaz T, Ng V, Richardson SE, Barton M, Allen U. Clinical consequences of human herpes virus-6 DNAemia in peripheral blood in pediatric liver transplant recipients. *Pediatric Transplantation* 2014: 18 (1): pp 47-51.

Atkinson C, Kamath BM, Mandelcorn J, Cutz E, Raiman JA. A teenager with nausea and vomiting. *Paediatrics and Child Health* 2013: 18 (10): pp 515-517.

Avitzur Y, Guo C, Mastropaolo LA, Bahrami E, Chen H, Zhao Z, Elkadri A, Dhillon S, Murchie R, Fattouh R, Huynh H, Walker JL, Wales PW, Cutz E, Kakuta Y, Dudley J, Kammermeier J, Powrie F, Shah N, Walz C, Nathrath M, Kotlarz D, Puchaka J, Krieger J, Racek T, Kirchner T, Walters TD, Brumell JH, Griffiths AM, Rezaei N, Rashtian P, Najafi M, Monajemzadeh M, Pelsue S, McGovern DP, Uhlig HH, Schadt E, Klein C, Snapper SB, Muise AM. Mutations in tetratricopeptide repeat domain 7A result in a severe form of very early onset inflammatory bowel disease. *Gastroenterology* 2014: 146 (4): pp 1028-1039.

Bandsma R, Sokollik C, Chami R, Cutz E, Brubaker P, Hamilton J, Perlman K, Zlotkin S, Sigalet D, Sherman P, Martin M, Avitzur Y. From diarrhea to obesity in prohormone convertase 1/3 deficiency – age dependent clinical, pathologic, and enteroendocrine characteristics. *Journal of Clinical Gastroenterology* 2013: 47 (10): pp 834-843.

Bandsma RH, Bozic MA, Fridell JA, Crull MH, Molleston J, Avitzur Y, Mozer-Glassberg Y, Gonzalez-Peralta RP, Hodik M, Fecteau A, de Angelis M, Durie P, Ng VL. Simultaneous liver-pancreas transplantation for cystic fibrosis-related liver disease: A multicenter experience. *Journal of Cystic Fibrosis* 2014: doi: 10.1016/j.jcf.2013.12.010. Epub 2014 Jan 16.

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Beekman JM, Sermet-Gaudelus I, de Boeck K, Gonska T, Denchs N, Mall MA, Mehta A, Martin U, Drumm M, Amaral MD. CFTR functional measurements in human models for diagnosis, prognosis and personalized therapy. Report on the pre-conference meeting to the 11th ECFS Basic Science Conference, Malta, 26-29 March 2014. *Journal of Cystic Fibrosis* 2014: 13 (4): pp 363-372.

Benchimol EI, Mack DR, Nguyen GC, Snapper SB, Li W, Mojaverian N, Quach P, Muise AM. Incidence, outcomes, and health services burden of very early onset inflammatory bowel disease. *Gastroenterology* 2014. Epub 2014 Jun 18.

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Derepas C, Kosar C, Avitzur Y, Wales PW, Courtney-Martin G. Decreased bone turnover markers in children on long-term parenteral nutrition (PN) for intestinal failure (IF). *Journal of Parenteral and Enteral Nutrition* 2013. Epub 2013 Aug 23.

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Diamond IR, Grant RC, Feldman BM, Pencharz PB, Ling SC, Moore AM, Wales PW. Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology* 2014; 67 (4): pp 401-409.

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Lam GY, Cemma M, Muise AM, Higgins DE, Brumell JH. Host and bacterial factors that regulate LC3 recruitment to *Listeria monocytogenes* during the early stages of macrophages infection. *Autophagy* 2013; 9 (7): pp 985-995.

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Ling SC, Avitzur Y. Predicting outcomes for children awaiting liver transplantation – is serum sodium the answer? *Hepatology* 2014; 59 (5): pp 1678-1680.

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Minar P, Haberman Y, Jurickova I, Wen T, Rothenberg ME, Kim Mi-Ok, Saeed SA, Baldassano RN, Stephens M, Markowitz J, Rosh J, Crandall WV, Heyman MB, Mack DR, Griffiths AM, Baker SS, Hyams JS, Kugathasan S, Denson LA. Utility of Neutrophil Fcγ Receptor I (CD64) index as a biomarker for mucosal inflammation in pediatric Crohn's disease. *Inflammatory Bowel Diseases* 2014; 20 (6): pp 1037-1048.

Molinski SV, Gonska T, Huan LJ, Baskin B, Janahi IA, Ray PN, Bear CE. Genetic, cell biological and clinical interrogation of the CFTR mutation c.3700A>G (p.Ile1234Val) informs strategies for future medical intervention. *Genetics in Medicine* 2014; 16 (8): pp 625-632.

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Ng VL, Nicholas D, Dhawan A, Yazigi N, Ee L, Stormon M, Gilmour S, Schrieber R, Taylor R, Andreou P, Otley A, and the PeLTQL Study Group. Development and validation of the PeLTQL: A disease-specific quality of life measure for pediatric liver transplant recipients. *Journal of Pediatrics* 2014. Epub 2014 Jun 26.

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Books and Chapters

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Grants and Funding

A comparative study of the antiviral efficacy and safety of entecavir (ETV) versus placebo in pediatric subjects with chronic hepatitis B virus (HBV) infection who are HBeAg-positive. Ling SC. **Bristol-Myers Squibb**. \$26,287 per patient-based stipend. Sept 20-2010 – until completion.

A multi-centre group to study Acute Liver Failure in Children (PALF). Squire R, Ng V, Kamath B. **National Institute of Health/ National Institute of Diabetes and Digestive and Kidney Diseases**. \$270,852 USD. Sept 1-2010-Aug 31-2015

A multidisciplinary approach to target chronic inflammation of the gut, liver and joint. Eksteen J, Kamath B. **Canadian Institutes of Health Research Team Grant.** \$2,443,500 CAD. Jan 1-2014-Dec 31-2019

A multi-disciplinary human study on the genetic, environmental and microbial interactions that cause IBD. Croitoru K, Griffiths AM. **Renewed funding from Crohn's and Colitis Canada and Helmsley Foundation.** \$9,000,000 CAD. 2013-2018

A pharmacogenetic trial of Tacrolimus after pediatric transplantation. Mital S, Kamath B. **Transplant and Regenerative Medicine Centre, SickKids Catalyst Grant.** \$150,000 CAD. Dec 1-2011-Dec 31-2013

A Pilot Study of Frailty in children with End-stage Liver Disease: Moving beyond PELD. Kamath B, Ng V. **Transplant and Regenerative Medicine Centre, SickKids Pilot Grant.** \$28,750 CAD. Jan 1-2013-Dec 31-2014

A single-center 12-year experience with Infliximab in the treatment of pediatric inflammatory bowel disease. Principal investigator: Griffiths AM. **Janssen.** \$120,000 CAD. 2012-2014

An integrated multi-disciplinary pipeline to study very early onset inflammatory bowel disease – Toronto pilot studies. Muise AM. The Leona M. and Harry B. **Helmsley Charitable Trust.** \$186,000 USD. Jul 1-2013-Jun 30-2014

An International Registry of Cerebrovascular Disease in Alagille Syndrome. Kamath B. **Paediatric Consultants, The Hospital for Sick Children-Creative Professional Activity Grant.** \$9,550 CAD. Jan 1-2013-Dec 31-2014

Assessment of school readiness and health-related quality of life in children transplanted under the age of 2 years at The Hospital for Sick Children. Ng V, Rogers A, Gold A, Kamath B. **Transplant and Regenerative Medicine Centre, SickKids. Ashley's Angels Foundation Pilot Grant.** \$13,553 CAD. Dec 1-2012-Dec 31-2013

Biliary complications after paediatric liver transplantation. Ghanekar A, Kamath B. **Transplant and Regenerative Medicine Centre, SickKids. Ashley's Angels Foundation Pilot Grant.** \$12,553 CAD. Dec 1-2012-Dec 31-2013

Canadian Children Inflammatory Bowel Disease Network. Griffiths A, Muise A, Walters T. **A Joint Partnership of Canadian Institute of Health Research and the C.H.I.L.D. Foundation.** \$5,000,000 CAD. April 2013-2018.

Canadian Pediatric Clinician Scientist Program. Jones NL. **BC Research Institute for Children and Women's Health.** \$150,000 CAD. Apr 1-2012-Mar 31-2015

Canadian Pediatric Clinician Scientist Program. Jones NL. **Manitoba Institute of Child Health.** \$50,000 CAD. Apr 1-2012-Mar 31-2015

Canadian Pediatric Clinician Scientist Program. Jones NL. **The Hospital for Sick Children Foundation.** \$300,000 CAD. Apr 1-2012-Mar 31-2015

Canadian Pediatric Clinician Scientist Program. Jones NL. **Women's and Children's Health Research Institute.** \$35,000 CAD. Apr 1-2012-Mar 31-2015

Childhood Liver Disease and Research Network (ChILDREN) Consortium. Sokol R, Ng V, Kamath B. **National Institute of Health/National Institute of Diabetes and Digestive and Kidney Diseases.** \$730,381 USD. Oct 1-2009-May 31-2014

Cholangiocyte differentiation from stem cells: Biliary disease in a dish. Kamath B, Ghanekar A. **SickKids Research Institute Stem Cell Innovation Grant.** \$56,000 CAD. Dec 1-2012-Dec 31-2013

CIHR Canadian Child Health Clinician Scientist Training Program. Jones NL, Stevens B, Han VKM, Lee SickKids, Chemtob S. **Canadian Institutes of Health Research.** \$325,000 CAD. Apr 1-2012-Mar 31-2015

Creating teams to solve critical issues in Crohn's disease team grant. Snapper S, Muise AM. **Translational Immunology (HITI)/Helmsley Trust Pilot Program Grants in Crohn's Disease.** \$400,000 USD. Jan 1-2012-Dec 31-2013

Defining very early onset IBD-CCFA PROKIIDS: NEOPICS. Muise AM. **Crohns and Colitis Foundation of America.** \$100,000 USD. Jan 1-2014-Dec 31-2014

De-novo autoimmune hepatitis in pediatric liver transplantation. Ekong U, Avitzur Y. **Yale Liver Center Research Grant.** \$10,000 USD. Jun 1-2013-Jun 30-2016

Determinants of the microbiome in IBD by the Harvard Broad Institute – Toronto IBD Consortium. Xavier R, Lencer W, Silverberg M, Muise AM, Snapper S, Croitoru K, Korzenik A, Bousvaros A. **Crohn's and Colitis Foundation of America Team Grant.** \$1,000,000 CAD. Jan 1-2011-Dec 31-2014

Emerging team grant in cystic fibrosis therapy. Ratjen F, Bear C, Ellis J, Rotin D, Durie P, Grasemann H, Hu J, Rossant J, Viirre R, Gonska T. **Canadian Institutes of Health Research.** \$2,401,449 CAD. December 1-2009-November 30-2014

Epithelial cell signaling responses to attaching-effacing intestinal pathogens. Sherman P. **Canadian Institutes of Health Research.** \$170,000 CAD. July 1-2013-January 1-2018

Establishing the Global Registry for Outcomes of Varices in Children. Ling SC. **The Hospital for Sick Children Paediatric Consultants Creative Professional Activity Grant.** \$9,817 CAD. April 1-2013-March 31-2014

Expansion of patient-specific Cystic Fibrosis epithelial cells for drug screening through transient partial reprogramming. Waddell TK, Keshavjee S, Nagy A, Gonska T, Bear C. **McEwen Centre CCRM Commercialization Impact Prize.** \$150,000 CAD. July 1-2013-June 30-2015

Extension and expansion of the sweat rate sub-study as part of the G551D observation study (GOA-32). Gonska T. **Cystic Fibrosis Foundation Therapeutics, Inc.** \$10,162 USD. January 1-2014-March 31-2015

Genetic and functional studies in very early onset-IBD (NEOPICS). Muise AM. **Canadian Institute of Health Research – Operating Grant (MOP119457).** \$866,005 CAD. January 1-2012 – March 31-2017

Hepatitis B Research Network: Entecavir and interferon- α 2a combination therapy for children immune tolerant to chronic hepatitis B infection. Ling SC, Heathcote J. **National Institutes for Health.** \$278,000 USD. June 1 2010-May 31 2015

IMAGEKIDS: A multi-center international study. Development of Magnetic resonance-based multi-item measures of inflammatory activity and structural damage in pediatric Crohn's disease. Griffiths A, Turner D. **Abbott International.** \$1,600,000 CAD. 2012-2015

Immunogenicity and safety of human papilloma virus vaccine in solid organ transplant recipients. Allen U, Avitzur Y. **Physicians Services Incorporated Foundation Grant.** \$20,000 CAD. Jul 1-2013-Jun 30-2014

Immunosuppression withdrawal for stable pediatric liver transplant recipients (iWITH). Feng S, Ng V, Avitzur Y. **National Institutes of Health.** \$210,586 USD. July 21-2012-June 30-2017

Impact of emergency department probiotic treatment of pediatric gastroenteritis: Randomized controlled trial. Freedman S, Black K, Farion K, Goeree R, Gorelick M, Gouin S, Johnson D, Schnadower D, Schuh S, Sherman P, Willan A. **Canadian Institutes of Health Research.** \$2,935,915 CAD. July 1-2013-December 31-2018

Impact of feeding type and nutrient fortification on the gut microbiome of very low birth weight infants. O'Connor D, Unger S, Croitoru K, Hagelsieb G, Kiss A, Mack D, Sherman P, Stintzi A. **Canadian Institutes of Health Research**. \$496,254 CAD. July 1-2013-December 31-2016

IMPACT: A multi-centre randomized controlled trial evaluation the impact of regular telephone contact with an IBD nurse during transition from pediatric to adult care. Nguyen G, Griffiths A. **Crohn's and Colitis Canada**. \$122,380 CAD. 2013-2014

Induced pluripotent stem cell models of Alagille syndrome. Kamath B, Ghanekar A. **Alagille Syndrome Alliance Foundation**. \$50,000 USD. January 1-2013-December 31-2015

Innate dysregulation and growth failure in pediatric Crohn's disease. Denson LA, Griffiths AM, Walters TD. **Crohn's and Colitis Foundation of America GIA**. \$120,000 CAD. July 1-2011 – June 30-2014

International Study Group of Pediatric Pancreatitis: In search for a cure. Uc A, Gonska T. **INSPIRE – National Institute of Health Consortium**. \$4,050 USD. September 15-2012-August 31-2014

Interrogation of SLC6A14 as a modifier for drug treatment in CF disease. Gonska T. **SickKids Foundation- Canadian Institutes of Health Research IHDCYH New Investigator Award**. \$300,000 CAD. Jul 1-2012-Jun 30-2015

Investigating the role of vitamin D deficiency in the development of cystic fibrosis disease. Gonska T, Ling S, Loverdos I. **Cystic Fibrosis Centre Catalyst Grant-SickKids**. \$49,971 CAD. June 1-2014-December 31-2015

National Early Onset Inflammatory Bowel Disease Cohort Study (NEOPICS). Muise A, Griffiths A. **Canadian Institutes of Health Research**. \$450,000 CAD. 2012-2015

Pediatric longitudinal study of elemental diet and stool microbiome composition. Griffiths A. **National Institutes of Health**. \$40,000 CAD. 2011-2013

PePA: The new revolutionary tool for measuring length and height. Mouzaki M, Roth D, Zlotkin S. **SickKids Innovation Fund**. \$9,981 CAD. August 1-2013-July 31-2014

Pluripotent stem cell modelling of human bile duct development and disease. Kamath B, Ghanekar A. **University Health Network Multi-Organ Transplant Academic Enrichment Grant**. \$49,700 CAD. January 1-2013-December 31 2014

POSITIVE study (ancillary study – autoimmunity and allergy in pediatric solid organ transplantation). Mital S, Upston A, Foster B, Avitzur Y. **Canadian National Transplant Research Program**. \$1,500,000 CAD. June 1-2013-May 31-2018

Predicting response to standardized paediatric colitis therapy: The PROTECT Study. Hyams J, Denson L, Kugathasan S, Sylvester F, Gupta N, Walters TD. **National Institutes of Health (NIDDK) U01 Multi-centre Clinical Study**. \$1,150,460 CAD. July 1-2012-June 30-2017

Prediction by ultrasound of the risk of hepatic cirrhosis in cystic fibrosis ('PUSH'). Ling SC, Durie P, Navarro O. **Cystic Fibrosis Foundation and National Institutes of Health**. \$63,000 USD. January 1-2014-Dec 31-2019

Primary EBV infection in the immunosuppressed setting of organ transplantation: Determinants of virus-host interaction. Allen U, Beyene J, Dipchand A, Grunebaum E, Hebert D, Husain S, Mazulli T, Ng V, Read S, Robinson J, Tellier R, Weitzman S. **Canadian Institutes of Health Research**. \$509,125 CAD. January 1-2010-December 31-2014

Risk Stratification & Identification of Immunogenetic and Microbial Markers of CD. Kugathasan S, Walters TD, PRO-KIIDS Consortium. **Crohn's and Colitis Foundation of America Special Purpose Grant**. \$1,000,000 CAD. July 1-2013-June 30-2016.

Role of ATG16L1 in Crohn's disease. Jones NL. **Crohn's and Colitis Foundation of Canada**. \$125,000 CAD. January 1-2012-December 31-2014

Stem cell models of Alagille Syndrome: Biliary disease in a dish. Ghanekar A, Kamath B. **National Institute of Health/National Institute of Diabetes and Digestive and Kidney Diseases. CHILDREN Consortium Pilot Grant**. \$25,000 USD. December 1-2012-December 31-2014

Sweat rate sub study as part of the G551D Observational Study (GOAL). Gonska T. **Cystic Fibrosis Foundation Therapeutics Inc**. \$26,000 USD. September 1-2011-August 31-2013

The gut microbiota in pediatric inflammatory bowel disease. Stintzi A, Mack D, Muise AM, Griffiths A, Walters T, Figelys, Hajibabaei. **Canadian Institutes of Health Research**. \$720,000 CAD. October 1-2011- September 30-2016

The role of NADPH oxidases in Crohn's Disease. Brumell J, Muise AM. **Canadian Institutes of Health Research**. \$771,358 CAD. October 1-2009 – September 30-2014

Therapy development for cystic fibrosis patients in Qatar. Bear CE, Ratjen F, Ray P, Goska T, Moraes T. **AI Qamri Holding Group/AI Qamri-SickKids CF Therapy Programme**. \$1,004,253 CAD. January 24-2014-February 28-2019

Staff

Division Head

Dr. Anne Griffiths

Full-Time

Dr. Yaron Avitzur
 Dr. Robert Bandsma
 Dr. Tanja Gonska
 Dr. Nicola Jones
 Dr. Binita Kamath
 Dr. Simon Ling
 Dr. Margaret Marcon
 Dr. Marialena Mouzaki
 Dr. Aleixo Muise
 Dr. Vicky Ng
 Dr. Philip Sherman
 Dr. Thomas Walters

Part-Time

Dr. Glenn Berall
 Dr. Peter Durie
 Dr. Carol Durno
 Dr. Paul Kortan
 Dr. Karen Liquornik
 Dr. Gary May

Locum Staff

Dr. Peter Church

Clinical Fellows

Dr. Yasser Al-Nasser
 Dr. Suzanna Attia
 Dr. Eberhard Lurz
 Dr. Ajay Sharma

Research Fellows

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 Dr. Andreean Benidir
 Dr. Karolina Burghardt
 Dr. Abdul Elkadri
 Dr. Ines Loverdos
 Dr. Cynthia Popalis
 Dr. Kunal Thacker
 Dr. Pamela Valentino
 Dr. Catharine Walsh

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 Karen Frost
 Joley Johnstone
 Silvana Oppedisano
 Krista Murch
 Constance O'Connor

Ambulatory Nurses

Zenaida Chinae
 Vikki Scaini
 Alison Stewart

IBD Nurse

Krista Uusoue

TPN Nurse

Debra Harrison

GI Procedure Nurses

Carol Fitzmaurice
 Donna Stevenson
 Wendy Taylor
 Kelly Wimbush

Dieticians

Andrea Carpenter
 Ines Martincevic
 Laura Vresk

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Saeedah Ahamad
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 Lilatool Shakur
 Suzanne Shek
 Barbara Zimnowodzki



haematology/oncology

Back row: Munira Nanji, Sharleen Sawicki, Ann Chang, Denise Mills, Amer Shammam, Reza Vali
 Front row: Karen Fung, Meredith Irwin, Sylvain Baruchel, Susan McQuattie

Divisional Overview

The Division of Hematology/Oncology provides diagnostic services and specialist care for children up to 18 years of age with cancer and non-malignant blood disorders. The Division is the largest of its kind in Canada and among the largest such programs worldwide, with approximately 360 new cancer cases registered in the pediatric oncology program this past year. The Division is the designated centre for haematopoietic stem cell transplantation for patients up to 18 years of age in Ontario and the Atlantic provinces; the majority of the approximate 100 transplants performed this year were for children with cancer, with others performed for children with benign hematologic disorders, severe immunodeficiency disorders or genetic diseases. The number of in-patient days for pediatric hematology/oncology/BMT cases this year was approximately 13,800, a decrease from the prior year attributable in part to efforts focused on reduction in length of stay. The number of ambulatory care visits was slightly up from the prior year at 21,250, as were day hospital visits at 11,500, reflecting an ongoing trend to transition of care from the inpatient to ambulatory setting.

Reflecting the size and diversity of its clinical services, the Division is organized into six sections and three programs: the Leukemia/Lymphoma section (Section Head, Dr. Johann Hitzler); the Solid Tumor section (Section Head, Dr. Meredith Irwin); the Neuro-oncology (brain tumor) section (Section Head, Dr. Eric Bouffet); the Blood and Marrow Transplantation section (Section Head, Dr. Maarten Egeler); the Hematology section (Section Head, Dr. Yigal Dror); the long-term follow-up (Aftercare) program (Program Head, Dr. Paul Nathan); the New Agents and Innovative Therapies program (Program Head, Dr. Sylvain Baruchel); and the Cancer Genetics program (Program Head, Dr. David Malkin). Dr. Sarah Alexander serves as the program's Clinical Director. The Hematology section has large clinical and research programs in pediatric thrombosis and hemostasis, the pediatric hemoglobinopathies and the inherited and acquired pediatric marrow failure syndromes and myelodysplasias. The Division is an active member of the Children's Oncology Group (COG), the largest pediatric cancer clinical trials group in North America

(SickKids Principal Investigator, Dr. Sarah Alexander), and is committed to the improvement in outcomes and quality of life in children with cancer through participation in prospective clinical trials. The Division is a member of the COG Phase I Consortium (Principal Investigator, Dr. Sylvain Baruchel), and is an active participant in activities of the Histiocyte Society, New Approaches to Neuroblastoma Therapy (NANT), and the Therapeutic Advances in Childhood Leukemia (TACL) clinical trials consortia. Over 250 clinical trials enrollments occurred this year. The Division, in collaboration with the Pediatric Oncology Group of Ontario (POGO), supports a network of pediatric oncology satellite centres in the Greater Toronto and surrounding areas, with over 5800 visits to satellite centres this year. Satellite centres in sickle cell disease are established in Rouge Valley hospital and the William Osler Health Centre. Major achievements in the past year included the completion of an MIBG facility on 8A of the hospital, offering an important new treatment modality for children with neuroblastoma, and the conversion of 4 inpatient rooms to negative pressure rooms, which will allow immunocompromised children requiring this isolation to remain on the Oncology unit.

The Division's training program for pediatric hematology/oncology, the largest such program in Canada, underwent successful re-accreditation by the Royal College of Physicians and Surgeons of Canada in 2013. The Division's Training Program Director is Dr. Michaela Cada. The Education Program in the Division also includes a very large international training program in pediatric hematology/oncology and offers subspecialty training opportunities in areas such as the pediatric leukemias/lymphomas, neuro-oncology, neuroblastoma, blood and marrow transplantation, bone marrow failure and pediatric thrombosis and hemostasis. One such trainee, Sears Childhood Cancer Fellow Dr. Hisaki Fujii, was awarded the 2013 David Smyth Award from the Canadian Blood and Marrow Transplant Group in recognition of his research on the creation of a humanized mouse model of chronic graft-vs-host disease conducted under the mentorship of Dr. Maarten Egeler.

Research in the Division spans basic science to clinical care with a special focus on translational research. Approximately one-half of the Division's 30 full-time Faculty have appointments as clinician scientists or clinician investigators in the Department of Pediatrics with parallel appointments in the Research Institute. Research in the Division is multidisciplinary, involving health care professionals with expertise in a variety of areas (e.g. nursing, psychology, social work, pharmacy). The Division is committed to facilitating knowledge exchange through international partnerships with a particular focus on countries lacking the health care resources available in Canada. Two such initiatives are currently underway in collaboration with SickKids International: the Global Sickle Cell Disease Network, under the leadership of Dr. Isaac Odame, and the Caribbean Collaboration in Pediatric Cancer and Blood Disorders, under the leadership of Dr. Victor Blanchette.

The Administrative team for the Division comprises Dr. Jim Whitlock (Division Head), Amrita D. Naipaul (Director, Child Health Services) and Denise Ferreira (Manager, Business Operations).

Honours & Awards

Bouffet E: Award for Excellence in Pediatric Clinical Research, Society for Neuro-Oncology, San Francisco, California, November 2013

Gupta S: Winner of the Edward Christie Stevens Fellowship, Toronto, Ontario, July 2013

Gupta S: Winner of the Starr Medal, Toronto, Ontario, July 2013

Gupta S: Winner of the Elizabeth Arbuthnot Dyson Fellowship, Toronto, Ontario, July 2013

Gupta S: Winner of the Joseph M. West Family Memorial Fund, Toronto, Ontario, July 2013

Gupta S: Winner of the Best Poster Award, 45th Congress of the International Society for Pediatric Oncology, Hong Kong, China, October 2013

Gupta S: Winner of the Best Poster Award, Paediatric Oncology Group of Ontario (POGO), Toronto, Ontario, November 2013

Huang A: Nominee for Canadian Cancer Society 2013 Bernard and Francine Dorval Prize Award for Excellence, Toronto Ontario, 2013

Punnett A: Winner of the Best Academic Half Day Award, The Hospital for Sick Children, Toronto, Ontario, June 2014

Punnett A: Winner of the Professional Development Program Award in the category of Field Practicum Preceptor, Department of Family and Community Medicine, The Hospital for Sick Children, Toronto, Ontario, April 2014

Weitzman S: Winner of the Medical Staff Association Citizenship Award, The Hospital for Sick Children, Toronto, Ontario, 2014

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A randomized control trial to evaluate the efficacy of a social skills intervention for childhood survivors. Barerra M, Sung L, Bartels U, Janzen L, Atenafu A, Cataudella D, Zelcer S, Downie A, Johnston D, Brandon S, Schulte F, Strother D, Briere M, Chung J, Hukin J, McConnell D. **Canadian Cancer Society Research Institute**. \$566,969 CAD. January 2012 – December 2014

A randomized study of IVIG vs IVIG with high dose methylprednisolone in rapidly augmenting platelet counts in childhood ITP. Carcao M, Blanchette V. **Grifols Canada Ltd**. \$145,065 CAD. December 2004-November 2013

A three-month prospective open label study of therapy with Fragmin® (Dalteparin Sodium Injection) in children with malignancies and venous thromboembolism. Brandão LR, Williams S. **Eisai Incorporated**. \$10,000/pt. USD. April 2010-March 2014

An institutional pilot study to investigate physical activity patterns in boys with hemophilia. Bouskill V, Hilliard P, Stephens S, Carcao M. **Baxter-Canadian Hemophilia Society Inherited Bleeding Disorder Fellowship Program for Nurses & Allied Health Professionals**. \$39,784.80 CAD. September 2013-August 2014

An international network to determine the origins and improve survival for children with mismatch repair genes mutations affected by malignant brain tumors. Tabori U. **b.r.a.i.n.child**. \$68,700 CAD. January 2011-December 2013

Anticoagulation prophylaxis in pediatric populations at high risk for venous thrombosis development. Bruce A, Nagel K, Price V, McCusker P, Brandão LR. **Canadian Paediatric Thrombosis and Haemostasis Network**. \$13,900 CAD. May 2013 – April 2014

Anti-tumor activity of lucitanib in preclinical pediatric tumor models. Baruchel S. **Insitut Recherche Servier**. \$80,000 CAD. June 2014 – June 2015

Applying biomarkers to long-term effects in child and adolescent cancer treatment (ABLE Team). Schultz. **Canadian Institute of Health Research**. \$4,076,000 CAD. January 2010 – December 2015

Biological and clinical impact of chromothripsis and early TP53 mutations on carcinogenesis in Li-Fraumeni syndrome. Malkin D, Tabori U. **Canadian Cancer Research Society**. \$200,000 CAD. August 2012-July 2014

Biomarkers for pediatric glioblastoma through genomics and epigenomics. Jabado N, Majewski J, Pastinen T, Rak J, Kislinger T, Bouffet E, Bourque G, Fernandez C, Lachaine J, Bartlett-Esquillant G, Montpetit A, Zadeh G, Huang A. **Genome Canada**. \$5,074,844 CAD. January 2013 – December 2017

Canadian National Transplant Research Program (CNTRP): Increasing donation and improving transplantation outcomes. West L, Hébert MJ, Egeler M. **Canadian Institute of Health Research**. \$13,850,000 CAD. April 2013 – March 2018

Childhood Cancer Survivor Study. Robison L. **National Institutes of Health**. \$20,422,953 USD. December 2011 – November 2016

Clinical and biological implications of monoallelic gene expression in pediatric malignant brain tumors. Tabori U, Taylor M. **Canadian Institute of Health Research**. \$573,543 CAD. April 2012 – March 2016

Clinical assessment of thrombosis in children after heart surgery: The CATCH Study. Manlhiot C, Brandão LR, Gruenwald C, Chan AK, Schwartz S, Holtby H, Sivarajan B, Van Arsdell GS, Caldarone C, Mertens L, Mital S, McCrindle BW. **Canadian Institute of Heart Research**. \$1,514,330. CAD July 2010 – June 2015

Clinical trial planning grant in catheter-directed thrombolysis of occlusive DVT. Manco-Johnston M, Kahn S, Sung L. **National Institutes of Health**. \$283,500 USD. January 2012 – December 2013

Cognitive performance and psychosocial development in young adult cancer survivors: a prospective, longitudinal study. Edelstein, Kim. Collaborators: Bernstein L, D'Agostino N, Pond G, Petr K, Gupta A, Batist G, Muanza T, Vuong T, Crump M, Schuh A, Matthew A, Hodgson D, Aubin S. **Canadian Cancer Society Research Institute**. \$299,734 CAD. January 2013 – December 2014

Combined telomerase inhibition and drug screen as novel therapies for tumor initiating cells in pediatric nervous system tumors. Tabori U. **Canadian Institute of Health Research**. \$300,000 CAD. January 2010 – December 2014

Comparing the burden of illness of hemophilia in the developing and the developed world: The Sao Paulo-Toronto hemophilia study. Feldman B, Blanchette V, Hilliard P, Young N, Carneiro J, Villaça P. **Baxter Healthcare Corporation**. \$219,667.94 US. October 2011-September 2014

Contribution of NETs to the pathogenesis of bronchiolitis obliterans syndrome (BOS) in patients receiving stem cell therapy. Gassas A, Cheng L, Palaniyar N. **Garron Family Cancer Centre**. \$50,000 CAD. January 2013 – December 2013

Creating and validating child adverse event reporting in oncology trials. Reeve BB, Hinds PS, Freyer D, Joffe S, Sung L, Baker J, Basch E, Dewalt D, Gold S, Reuland D, Irwin D, Qaqish B, Jacobs SS, Wang J, Docherty S, Adamson P, Withycombe J. **National Institutes of Health**. \$3,039,195 CAD. April 2013 – March 2018

Deciphering the pathobiology of Shwachman Diamond syndrome hematopoietic failure using human induced pluripotent stem cells. Dror Y, Keller G, Rommens J. **Canadian Institute for Health Research**. \$549,000 CAD. April 2013 – March 2016

Defining the epigenome of malignant glial and primitive neural brain tumours. Huang A, Rutka J, DeCarvalho D, Noushmehr H, Serafini N, Carlotti C. **University of Toronto and Universidade de Sao Paulo (USP) Joint Call**. \$40,000 CAD. January 2014-December 2016

Defining treatment-related mortality in pediatric cancer. Sung L, Pole JD, Johnston D, Gibson P, Portwine C, Silva M. **Pediatric Oncology Group of Ontario**. \$99,380 CAD. June 2013 – May 2015

Determination of molecular signatures that allow differentiation between unilateral and bilateral Wilm's tumours using genome-wide arrays and whole-exome sequencing. Weksberg R, Lorenzo A, Romao R, Choufani S, Shuman C, Grant R, Taylor G, Bagli D, Gerstle J, Brudno M. **C17 Research Network**. \$150,000 CAD. September 2013 – August 2015

Developing e-Chemo: an e-learning chemotherapy curriculum for haematology/oncology fellows. Shaikh F, Wilejto M, Punnett A. **Paediatric Consultant's Education Innovation and Development Grant**. \$4,740 CAD. April 2013 – March 2014

Development and validation of a pediatric cancer-specific symptom assessment screening tool. Sung L, Spiegler B, Dupuis L, Regier D. **Canadian Cancer Society Research Institute**. \$906,597 CAD. February 2014 – January 2019

Development of a pediatric cancer-specific symptom assessment screening tool. Sung L, Dupuis LL. **Pediatric Oncology Group of Ontario**. \$14,970 CAD. January 2012 – December 2013

Discovery and characterization of C19MC a novel oncogenic miRNA locus in malignant brain tumors. Huang A. **Canadian Institute of Health Research**. \$520,000 CAD. April 2010 – March 2014

DNA copy number variation in Li-Fraumeni Syndrome. Malkin D. **Canadian Institutes for Health Research**. \$1,084,000 CAD. March 2013-February 2018

Does baseline coagulation profile and exercise induced change in hemostatic profile explain phenotypic variability between hemophilia A and hemophilia B patients: a comparative cohort study". **Carcao M. Pfizer**. \$119,500 CAD. February 2013 – January 2015

Enhancing the quality of palliative and end-of-life care for children with cancer. Rapoport A, Widger K, Greenberg M, Husain A, Bouffet E, Siden H, Pole J, Whitlock J, Wolfe J, Friedrichsdorf S, Liben S. **Canadian Partnership Against Cancer**. \$959,264 CAD. December 2013 – January 2017

Ex-vivo expanded hematopoietic progenitors for AML supportive care. Delaney AM, Sung L, Meshinchi S. **St. Baldrick's Foundation**. \$500,000 CAD. January 2011 – December 2013

Examining the relationship between white matter integrity and the speed of neuronal processing in children with brain tumours. Mabbott D, Tabori U, Bouffet E. **Canadian Institute of Health Research**. \$640,915 CAD. April 2012 – March 2017

Exercise intervention in children treated with radiation for brain tumors. Mabbott DJ, Timmons B, Bartels U, Bouffet E, Laughlin S, Piscione J, Scantlebury N, Scheinemann K. **Canadian Cancer Society Research Institute**. \$200,000 CAD. April 2012 – March 2014

External validation of ultrasound as a diagnostic tool for assessment of hemophilic arthropathy of knees and ankles. Doria A, Blanchette V, Carneiro J, D'Amico EA, Ribeiro Villaça P, Rodrigues MB, Castro de Ozelo M, de Paula EV, Antunes S, Fernandes A, Moineddin R, Hilliard P. **Baxter Healthcare Corporation**. \$203,741 USD. October 2011-September 2014

Fluid accumulation in pediatric post-thrombotic syndrome. Brandão LR, Feldman B, Stinson J, Kiss A, Avila ML. **Physicians Service Incorporated Foundation**. \$52,500 CAD. September 2013 – August 2014

Functional oncogenomics for the discovery of cancer drivers and unique subclasses (FOCUS). Khokha R, Irwin MS. **Ontario Research Fund**. \$2,364,360 CAD. January 2010 – December 2013

Genetic influences on the pharmacokinetics of Factor VIII. Lillicrap D, Blanchette V, Carcao M, Rivard G. **Baxter-Canadian Hemophilia Epidemiological Research Program (B-CHERP)**. \$75,000 CAD. September 2010 – August 2013

Genetic predictors of acute myeloid leukemia treatment response. Alpenc R, Sung L, Zaoutis T, Chen J, Alonzo T, Lehrnbecher T. **National Cancer Institute**. \$3,873,189 USD. March 2009 – December 2014

Genetic signatures of pediatric cancer predisposition syndromes. Tabori U, Malkin D, Shlien A, Meyn S. **McLaughlin Foundation**. \$40,000 CAD. April 2014 – March 2015

Immunogenicity, efficacy and safety of treatment with human-cl rhFVIII in previously untreated patients with severe haemophilia A. Carcao M. **Octapharma**. \$8,025.00 CAD/pt+ \$8,700 start-up. June 2013 – June 2018

Impact of chlorhexidine bathing on reducing infections in children with cancer. Zerr D, Sung L, Milston A, Zaoutis T. **National Institutes of Health**. \$2,809,406 USD. Aug 2012 – May 2017

Improving access to standardized fertility preservation information in pediatric oncology: A 1-year pilot knowledge translation intervention. Lorenzo A, Gupta A, Barwick M, Hadipour-Lamehsari S, Lo K, Donen, R. **Pediatric Oncology Group of Ontario**. \$14,961 CAD. May 2014 – April 2015

Improving the quality of oncofertility decision making among young women at risk of infertility during cancer survivorship. Baxter N, Kennedy E, Simmons E, Gupta A, Yee S, Brezden-Masley C, Nathan PC, Hicks L, Greenblatt E. **Canadian Cancer Society Research Institute**. \$299,936 CAD. January 2014 – December 2017

In vivo anti-tumor and anti-metastatic activity of administration of Abraxane and low-dose chemotherapy in preclinical neuroblastoma and sarcoma mouse model. Baruchel S, Zhang L. **C17 Research Network, Ziopharm, Abraxis**. \$155,000 CAD. August 2012 – July 2014

Incorporation of rFVIII into platelets as a potential therapy in patients with inhibitory antibodies to factor VIII. Kahr WHA. **Canadian Hemophilia Society**. \$150,000 CAD. June 2013 – May 2015

Infographic development: Fertility preservation program. Gupta A, Lorenzo A. **Executive Advisory Council and Innovation Acceleration Team, The Hospital for Sick Children**. \$10,000 CAD. May 2013-April 2014

Inherited bone marrow failure syndromes: from gene discoveries to pathobiology. Dror Y, Scherer S, Berman J, Cada M, Virtanen S, Gordon Keller, 16 Canadian Inherited Marrow Failure Registry site co-investigators. **Canadian Institute for Health Research**. \$760,000 CAD. April 2013 – March 2018

Initiative to maximize progress in adolescent cancer therapy (IMPACT). Baxter N, Nathan P, Gupta S, Barr R, Greenberg M, Pole J, Sussman J, Sutradhar R, Gupta A, Alexander S, Hicks L, Johnston D, Paszat L. **C17 Research Network**. \$179,676 CAD. January 2013 – December 2015

Initiative to maximize progress in adolescent cancer therapy (IMPACT). Baxter N, Nathan P, Gupta S, Pole J, Greenberg M, Barr R, Gupta A, Sussman J, Sutradhar R, Sawka A, Wasserman J, Rapoport A. **Canadian Institute for Health Research**. \$913,870 CAD. January 2014 – December 2019

International consensus on staging systems for pediatric cancer registries. Gupta S, Frazier L. **National Cancer Institute Center for Global Health**. \$21,936 CAD. April 2014 – March 2015

Long-term family economic consequences of a childhood cancer diagnosis. Pole N, Greenberg M, Chan K, Mittman N. **Canadian Institutes of Health Research**. \$246,924 CAD. March 2013 – February 2016

Longitudinal assessment of peripheral neuropathy and motor function in children treated for average risk acute lymphoblastic leukemia. Kadan-Lottick N, Ness K, Hockenberry M, Sung L. **Biomarker, Imaging and Quality of Life Studies Funding Program**. \$1,633,012 USD. November 2010 – October 2016

Lung proteins as serum biomarkers for bronchiolitis obliterans syndrome (BOS) in patients receiving stem cell therapy. Palaniyar N, Gassas A. **Ontario Thoracic Society**. \$44,000 CAD. January 2013 – December 2013

Management and health outcomes in adolescents with non-hodgkin's lymphoma's in Ontario. Baxter N, Nathan PC, Greenberg ML, Pole J, Gupta S, Barr RD, Alexander S, Hicks L. **POGO Research Unit Seed Funding Grant Competition**. \$14,934 CAD. January 2013-December 2014

Mapping the functional genome of CNS-PNETs. Huang A, DeCarvalho D. **Garron Family Cancer Centre**. \$50,000 CAD. January 2014-December 31 2014

Mentor 6: Use of rFXIII in treatment of congenital FXIII deficiency, a prospective multi-centre observational study. Carcao M. **Novo Nordisk**. \$8,232 CAD/pt+ \$8,600 start-up. July 2013 -June 2015

Molecular determinants of Li-Fraumeni Syndrome-associated cancers. Malkin D. **Canadian Institutes for Health Research**. \$750,150 CAD. March 2010 – February 2015

Molecular-functional imaging of hypoxia in childhood sarcomas: Feasibility steps towards personalized medicine. Doria A, Shammass A, Vali R, Gupta A, Malkin D, Fisher J, Cheng HL, Somers G, Moineddin R. **Society of Pediatric Radiology**. \$50,000 CAD. May 2014 – April 2015

Molecular insights into gray platelet syndrome. Kahr WHA. **Canadian Institutes of Health Research Canada**. \$821,637 CAD. July 2012 – June 2017

Molecular mechanisms of clonal & malignant myeloid transformation in inherited bone marrow failure syndromes. Dror Y, Scherer S, Cada M, Shago M. **Canadian Fanconi Anemia Research Fund Grant**. \$291,000 CAD. April 2012 – March 2015

My Team of Care-Adolescents and Young Adults with Cancer (myTOC-AYAC): Development and usability testing of an online communication tool for collaborative care in AYAC. Stinson J, Cafazzo J, D'Agostino N, Gupta A, Hodgson D, Jamieson T, Lee Chong A, Nathan PC, Zita J. **Canadian Institutes of Health Research**. \$99,972 CAD. January 2013-December 2014

Myc- mediated cell extrinsic signaling in brain tumour progression. Huang A. **Brain Tumour Foundation of Canada, Richard Motyka Brain Tumour Research Fellowship**. \$100,000 CAD. January 2014-December 2016

National Pediatric Hematology/Oncology Education Resource. Rayar M, Punnett A. **University of Toronto Provost's Instructional Technology Innovation Fund.** \$7,159 CAD. July 2013 – June 2014.

Neuroblastoma (MIBG) and acute leukemia phase I/II trials programs at The Hospital for Sick Children. Whitlock J, Baruchel S, Irwin MS, Hitzler J, Punnett A. **Alex's Lemonade Stand.** \$80,000 CAD. January 2011 – December 2013

Neurocognitive-phenome, genome, epigenome and nutriome in childhood leukemia survivors: N-PhenoGENICS. Ito S, Guger S, Hitzler J, O'Connor D, Schachar R, Spiegler B, Weksberg R, Carleton B. **Canadian Institutes of Health Research.** \$356,676 CAD. October 2011 – September 2016

Novel approaches to the prediction, diagnosis and treatment of cardiac late effects in survivors of childhood cancer. Nathan P, Mertens L, Mital S, Kantor P, Greenberg M, Dillenburg R, Liu P, McManus B, Sandor G, Phillips M, Dube M-P, Mandel K, Scherer S, Hodgson D, Manlhiot C, Rosenberg H, Zelcer S, Loughheed J. **Canadian Institutes for Health Research.** \$2,797,748 CAD. January 2011-December 2016

Novel imaging techniques for assessment of early cartilage and soft tissue changes in hemophilic ankles. Doria A, Fenster A, Sussman M, Blanchette V. **Canadian Hemophilia Society.** \$149,971 CAD. October 2011-September 2013

Novel implications of THOR hypermethylation in telomere maintenance and gliomagenesis. Tabori U. **Canadian Institute of Health Research.** \$990,000 CAD. January 2014 – December 2019

Novel therapies for Neuroblastoma. Irwin MS. **National Cancer Institute of Canada/Canadian Cancer Society Research Institute.** \$450,000 CAD. January 2011- December 2014

NUMED Kids. Targeted radio therapy for treatment of neuroblastoma. Baruchel S, Zhang L. **CJ Memorial Fund and Garron Family Cancer Centre.** \$96,000 CAD. January 2012 – December 2014

Olanzapine for prevention of chemotherapy-induced nausea and vomiting in children: A feasibility study. Dupuis LL, Johnston D, Gibson P, Portwine C, Orsey A, Sung L, **Schechter-Finkelstein T. Pediatric Oncology Group of Ontario.** \$14,943 CAD. May 2013 – April 2014

Oncofertility Infographic. Lorenzo A, Gupta A. **Patient Education Grant, Division of Medical Oncology, Princess Margaret Hospital.** \$5,000 CAD. August 2013 – July 2014

One retinoblastoma world – A global proposal for saving children with retinoblastoma. Gallie B, Chan H. **Anna-Liisa and Graham Farquharson Fast Foundation.** \$125,000 CAD January 2011-December 2014

One retinoblastoma world – A global proposal for saving children with retinoblastoma. Gallie B, Chan H. **TUYF Charitable Trust.** \$1,000,000 USD. January 2011- December 2014

Open-label safety and tolerability of dabigatran etexilate mesilate given for 3 days at the end of standard anticoagulant therapy. Multi-centre, multinational, non-randomised, uncontrolled single arm trial to investigate tolerability and safety of dabigatran etexilate solution in children 1 to <12 years of age. Brandão LR. **Boehringer Ingelheim.** \$46,915.50 CAD. February 2012 – January 2014

p73 modulatory proteins: Roles in apoptosis and chemosensitivity. Irwin MS. **National Cancer Institute of Canada/Canadian Cancer Society Research Institute, Canadian Cancer Society.** \$427,500 CAD. January 2010 – December 2013

Paradigm TM 5: An open-label, single-arm, multinational, non-controlled, confirmatory trial investigating safety, efficacy and pharmacokinetics of NNC-0156-0000-0009 (N9-GP) in prophylaxis and treatment of breakthrough bleeding episodes in previously treated children with haemophilia B (12 years of age and younger at inclusion), with extension phase. Carcao M. **Novo Nordisk.** \$18,565 US/pt + \$7,000 start-up. May 2012 – April 2015

Parent, provider, and survivor perspectives of investigational fertility preservation interventions for pre pubertal boys with cancer: Exploring the factors influencing decisions and measuring preferences. Lorenzo A, Boydell K, Lo K, Sung L, Portwine C, Pritchard S. **C17 Research Network.** \$158,108 CAD. June 2012 – April 2014

Pathfinder 5: A multinational, open-label, non-controlled trial on safety, efficacy and pharmacokinetics of NNC 0129-0000-1003 in previously treated paediatric patients with severe haemophilia A. Carcao M. **Novo Nordisk.** \$21,959.00 USD/pt + \$14,500 start-up. July 2013 – June 2016

PET-guided personalized medicine in neuroblastoma: a pilot study of somatostatin-receptor imaging with 68 Ga-DOTA-TATE PET. Baruchel S, Constantini D, Vali R, Charron M: **Garron Family Cancer Centre Seed Grant.** \$50,000 CAD. January 2012 – December 2013

Pharmacogenetic analysis of cyclophosphamide metabolism in pediatric acute lymphoblastic leukemia patients. Kim RB, Whitlock JA, Zorzi AP **C17 Research Network: Childhood Cancer Canada Foundation and the Coast to Coast Against Cancer Foundation.** \$25,830 CAD. April 2012 – September 2013

Pharmacologic reversal of ventricular remodeling in childhood cancer survivors at risk for congestive heart failure (PREvent-CHF). Armenian S, Nathan P, et al. **The Leukemia and Lymphoma Society.** \$540,054 CAD. January 2011-December 2014

Phase II study of high dose chemotherapy with cyclosporin for vision-threatening intraocular retinoblastoma. Chan HSL, Gallie BL. **Terry Fox Research Institute.** \$75,908 CAD. January 2010-December 2015

Phase-specific and lifetime medical costs of care for childhood cancer in British Columbia and Ontario. McBride M, Krahn M, De Oliveira C, Greenberg M, Nathan P, Peacock S, Rogers P. **Canadian Institutes of Health Research.** \$533,712 CAD. January 2011-December 2014

Physical activity to modify sequelae and QOL in childhood ALL: A nursing trial. Cox C, Nathan PC, Bhatia S, Wasilewski K, Welk G, Ness K, Srivastava DK, Robison L, Howard S, Kaste S. **National Institutes of Health/National Cancer Institute.** \$4,544,841 USD. August 2009-May 2014

Pilot study for the standardization of diagnostic techniques of CVL. Mitchell L, Brandão LR. **Bristol-Myers-Squibb.** ~USD\$8,000/per case. October 2012 – September 2013

Practices towards low molecular weight heparin treatment in children. Nagel K, Brandão LR. **Canadian Paediatric Thrombosis and Haemostasis Network.** \$13,900 CAD. May 2013 – April 2014

Predicting the risk of infection in children receiving chemotherapy for acute myeloid leukemia. Sung L, Beyene J, Allen U. **Canadian Cancer Society.** \$817,963 CAD. July 2008 – June 2015

Prediction and prevention of glioma recurrence by targeting telomere dependent self-renewal capacity of tumor initiating cells. Tabori U. **Canadian Institutes of Health Research**. \$919,270 CAD. April 2011 – March 2016

Preliminary examination of the impact of cyclophosphamide pharmacokinetic variability on outcomes in paediatric hematopoietic stem cell transplantation. Schechter T, Dupuis L, Doyle J, Kim R, Gassas A, Finkelstein Y. **Garron Family Cancer Centre**. \$46,323 CAD. March 2013 – March 2014

Project 6: Pediatric outcomes study in transplant: Personalized immunosuppression to improve age-related outcomes (POSITIVE Study). Mital S, Foster B, Allen U, Anthony S, Bell L, Blydt-Hansen T, Birk P, Morgan C, Conway J, Dupuis LL, Grant D, Lapeyraque A-L, Litalien C, Parekh R, Phan V, Samuel S, Schechter T, Théorêt Y, Urschel S. **Canadian Institutes of Health Research**. \$1,500,000 CAD. April 2013 – March 2015

Prospective surveillance of resistance in colonizing bacteria from stool or peri-rectal swab cultures in bacterial isolates from sterile site cultures in pediatric patients receiving levofloxacin for AL or undergoing SickKidsT. Fisher B, Alexander S, Guar A, Zaoutis T, Sung L. **Biomarker, Imaging and Quality of Life Studies Funding Program**. \$913,202 USD. February 2011 – January 2015

Recruitment of endogenous neural stem cells to promote repair following acquired brain injury in children. Miller FD, Mabbott DJ, Frankland PW, Morshead CM, Bouffet E. **Garron Family Cancer Centre, The Hospital for Sick Children**. \$300,000 CAD. April 2013 – March 2016

Recruitment of endogenous neural stem cells to promote repair following acquired brain injury in children. Miller FD, Mabbott DJ, Frankland PW, Morshead CM, Bouffet E. W. **Garfield Weston Foundation-Brain Canada Multi-Investigator Research Initiative**. \$1,500,000 CAD. January 2013 – December 2016

Risk factors and long-term consequences of childhood solid organ transplants. Parekh R, Nathan PC, Dipchand A, Hebert D, Ng V, Solomon M. **SickKids Transplant and Regenerative Medicine Centre Grant**. \$50,000 CAD. January 2013 – December 2014

Rodin: Research of determinants of inhibitor development among previously untreated patients with haemophilia. Carcao M, Blanchette V. **University Medical Center Utrecht**. €250/patient. October 2007-September 2013

SickKids MIBG and phase I leukemia programs. Whitlock JA. **Alex's Lemonade Stand: Foundation for Childhood Cancer**. \$233,280 CAD. July 2011-June 2014

Stratifying and targeting pediatric medulloblastoma through genomics. Malkin D, Taylor M, Marra C. **Genome Canada**. \$9,724,200 CAD. July 2011 – June 2015

Studies of alpha granule formation in human megakaryocytes and platelets. Kahr WHA. **Canadian Institutes of Health Research Canada**. \$689,721 CAD. April 2010-March 2015

Targeting hypoxia to overcome drug resistance, combining TH-302 and standard chemotherapy in rhabdomyosarcoma and neuroblastoma murine models. Baruchel S. **Merck Seronno**. \$70,000 CAD. January 2014 – January 2015

Targeting metastatic neuroblastoma. Irwin MS, Kaplan DR. **Canadian Institutes of Health Research**. \$771,485 CAD. January 2014 – December 2019

Targeting the integrin-linked kinase (ILK) in rhabdomyosarcoma. Malkin D. **Canadian Institutes for Health Research**. \$381,270 CAD. March 2012 – February 2015

Targeting thrombospondin-1 in medulloblastoma. Huang A, Zadeh G. **Canadian Institute of Health Research**. \$762,000 CAD. April 2012 – March 2017

TCD with Transfusions Changing to Hydroxyurea (TWITCH): A Phase III randomized clinical trial to compare standard therapy (erythrocyte transfusions) with alternative therapy (hydroxyurea) for the maintenance of lowered TCD velocities in pediatric subjects with sickle cell anemia and abnormal pre-treatment TCD velocities. Kirby M, Williams S, Odame I. **National Heart, Lung, and Blood Institute**. \$23,000,000 CAD. April 2009-March 2014

Teens taking charge: A pilot randomized controlled trial of a self-management and transitional care program for youth with cancer. Stinson J, Breakey V, Gupta A, Dick B, Dupis F, Johnston D, Laverdiere C, Le May S, Lee Chong A, Portwine C, Victor J. **Canadian Institutes of Health Research**. \$327,894 CAD. February 2014 – January 2016

Teens taking charge-Managing cancer online trial: A feasibility study of quality and cost. Stinson J, Breakey V, Dick B, Dupuis F, Gupta A, Johnston D, Laverdiere C, Le May S, Lee Chong A, Portwine C, Tsimicalis A, Victor J, Zita J. **Canadian Institutes of Health Research**. \$92,207 CAD. October 2013 – September 2014

Terry Fox New Investigator award-Exhaustion of tumor initiating cells by targeting their self-renewal capacity with telomerase inhibition. Tabori U. **The Terry Fox Foundation**. \$450,000 CAD. September 2010 – August 2013

The ICHANGE (International Childhood Astrocytomas Integrated Genomics and Epigenomics) Jabado N, Majewski J, Rak J, Huang A, Kislinger T and Zadeh G. **Genome Canada**. \$10,000,000 CAD. January 2013 – December 2017

The PainSquad+ real-time pain management system for adolescents with cancer: A feasibility, quality and cost study. Stinson J, Maloney AM, Jibb L, Nathan PC, Stevens B, Cafazzo J, Seta E, Johnston D. **Alex's Lemonade Stand**. \$50,043.50 USD. January 2014 – December 2015

The role of histones in the development of pediatric diffuse intrinsic pontine glioma. Hawkins C, Bouffet, E. **Canadian Cancer Society Research Institute**. \$1,250,000 CAD. January 2014 – December 2019

The roles of the novel p53 family proteins in cancer and chemosensitivity. Irwin MS. **Canada Research Chair; Tier II Renewal (Salary Award)**. \$500,000 CAD. January 2008 – December 2013

The transcriptional consequences of somatic mutations in Ewing sarcoma. Shlien A, Malkin D. **Ewing Sarcoma Foundation of Canada**. \$100,000 CAD. August 2014 – July 2016

Thiopurine S-methyltransferase testing for averting drug toxicity in pediatric patients receiving thiopurines: An application of enhanced meta-analysis of diagnostic tests. Ungar W, Ito, S, Whitlock J, Zur, R, Beyene J, Carew C, Uleryk E. **Canadian Institutes of Health Research**. \$100,000 CAD. October 2013-September 2014

THOR methylation for detection of minimal residual disease in cancer. Tabori U. **MARs Innovation**. \$150,000 CAD. January 2013 – December 2013

Towards a standardized electronic pain clinical decision support system for adolescents with cancer: A consensus conference. Stinson J, Cafazzo J, Jibb L, Maloney AM, Nathan PC, Stevens BJ. **Canadian Institutes of Health Research**. \$24,867 CAD. January 2013 – December 2014

Toxicity monitoring on phase III clinical trials with administrative data. Aplenc R, Fisher B, Adamson P, Alonzo TA, Keren R, Sung L, Vujkovic M, Gerbing R, Hall M, Bertoch D. **National Institutes of Health**. \$1,806,518 USD. August 2012 – May 2016

Training program in protein folding and interaction dynamics: Principles and diseases. Houry WA, Forman-Kay JD (Principal Investigators); Adeli K, Chakrabartty A, Chalikian TV, Chan HS, Davidson AR, Fraser PE, Glover JR, Gradinaru C, Heon E, Kahr WH, Kay LE, Lingwood CA, Mahuran DJ, Mcgavin MJ, Robertson J, Schmitt-Ulms G, Steipe B, Williams DB, Wodak S, Woolley AG, Zhao R. **Canadian Institutes of Health Research Canada**. \$1,950,000 CAD. July 2009 – June 2015

Training and mentorship of hematologic oncologists. Burns L, Sung L, Ansell S, Basso J, Blum K, Brown J, Byrd J, Clayton C, Crowther M, DeBaun M, Devidas M, DiPersio J, Flowers C, Geyer S, Ghobrial I, Gitlin S, Griffith L, Heddle N, Leonard J, Mikhael J, Mitchell B, Neuberger D, O'Brien S, Panepinto J, Stock W, Tomlinson G, Vesely S, Whitlock J, Brown P. **National Institutes of Health**. \$1,443,290 USD. Jul 2013 – Jun 2018

Understanding body image, dating relationships and sexuality in adolescents with cancer. Stinson J, Gupta A, Marrera B, Greenberg M. **Pediatric Oncology Group of Ontario**. \$14,963.00 CAD. June 2012 – May 2014

Up regulation of Epstein-Barr virus activity by plasmodium falciparum: Determinants of host control. Allen U, Weitzman S. **Canadian Institutes of Health Research**. \$700,000 CAD. January 2011-December 2014

Using the zebrafish as a pre-clinical animal tumour model for drug discovery and the evaluation of anti-leukemia agents. Dellaire GP, Berman J, Chiu P, Ross C, Whitlock J. **Canadian Institutes of Health Research**. \$400,000 CAD. April 2012 – March 2015

Utilization of global systems and informatics approach to define the role of ncRNAs in determining molecular phenotypes of embryonal brain tumours. Huang A, Bader. **Brain Canada – Canadian Imperial Bank of Commerce Brain Cancer Training Award**. \$165,000 CAD. January 2013 – December 2016

Utilization of THOR hypermethylation for stratification and noninvasive detection of cancer. Tabori U. **Canadian Cancer Research Society**. \$200,000 CAD. January 2014-December 2016

Validation of the Children's International Mucositis Evaluation Scale (ChIMES). Sung L, Beyene J, Feldman B, Tomlinson D. **Canadian Institutes of Health Research**. \$313,000 CAD. January 2010 – March 2015

Validation of the Children's International Mucositis Evaluation Scale (ChIMES). Sung L, Beyene J, Feldman B, Tomlinson D. **National Institutes of Health**. \$110,000 USD. September 2010 – August 2014

What factors do children with cancer and childhood cancer survivors say are important to understanding their quality of life? A qualitative study. Klaasen A, Anthony S, Dix D, Klaassen R, Sung L. **C17 Children's Cancer and Blood Disorders**. \$156,093 CAD. January 2011 – December 2013

Staff

Division Head

Dr. James Whitlock

Full-Time Faculty

Dr. Oussama Abla
 Dr. Sarah Alexander
 Dr. Muhammad Ali
 Dr. Ute Bartels
 Dr. Sylvain Baruchel
 Dr. Victor Blanchette
 Dr. Eric Bouffet
 Dr. Leonardo Brandão
 Dr. Michaela Cada
 Dr. Manuel Carcao
 Dr. Helen Chan
 Dr. Yigal Dror
 Dr. Maarten Egeler
 Dr. Adam Gassas
 Dr. Ron Grant
 Dr. Abha Gupta
 Dr. Sumit Gupta
 Dr. Johann Hitzler
 Dr. Annie Huang
 Dr. Meredith Irwin
 Dr. Walter Kahr
 Dr. Melanie Kirby
 Dr. David Malkin
 Dr. Ahmed Naqvi
 Dr. Paul Nathan
 Dr. Isaac Odame
 Dr. Angela Punnett
 Dr. Tal Schechter-Finkelstein
 Dr. Furqan Shaikh
 Dr. Lillian Sung
 Dr. Uri Tabori
 Dr. Sheila Weitzman
 Dr. Suzan Williams

Cross-Appointed/Part-Time

Dr. Stephen Comay
 Dr. Lee Ann Gallant
 Dr. Mark Greenberg
 Dr. David Hodgson
 Dr. Nicole Inch
 Dr. Normand Laperriere
 Dr. Aubrey Maze

Clinical Associates

Saima Alvi
 Doua Bakry
 Moira Garraus
 Joerg Krueger
 Stephan Leucht
 Marta Wilejto

Clinical Fellows

Dr. Jennifer Adamski
 Dr. Ehsan Al Faraj
 Dr. Amal Al Sabahi
 Dr. Tahani Bin Ali
 Dr. Deepak Chellapandian
 Dr. Eman El Shamsi Taryam
 Dr. Mohammed Essa
 Dr. Eric Fu
 Dr. Hisaki Fujii
 Dr. Ibrahim Ghemlas
 Dr. Ana Guerreiro Stucklin
 Dr. Stephanie Heidemann
 Dr. Sakara Hutspardol
 Dr. Rahul Krishnatry
 Dr. Riten Kumar
 Dr. Veronica Leoni
 Dr. Sharon McLean
 Dr. Naureen Mushtaq
 Dr. Rungrote Natesirinilkul

Dr. Sapna Oberoi
 Dr. Katherine Patrick
 Dr. Mattia Rizzi
 Dr. John Roy
 Dr. Christine Sabapathy
 Dr. Gabriele Zamperlini
 Dr. Antonella Zanette
 Dr. Nataliya Zhukhova

Subspecialty Residents

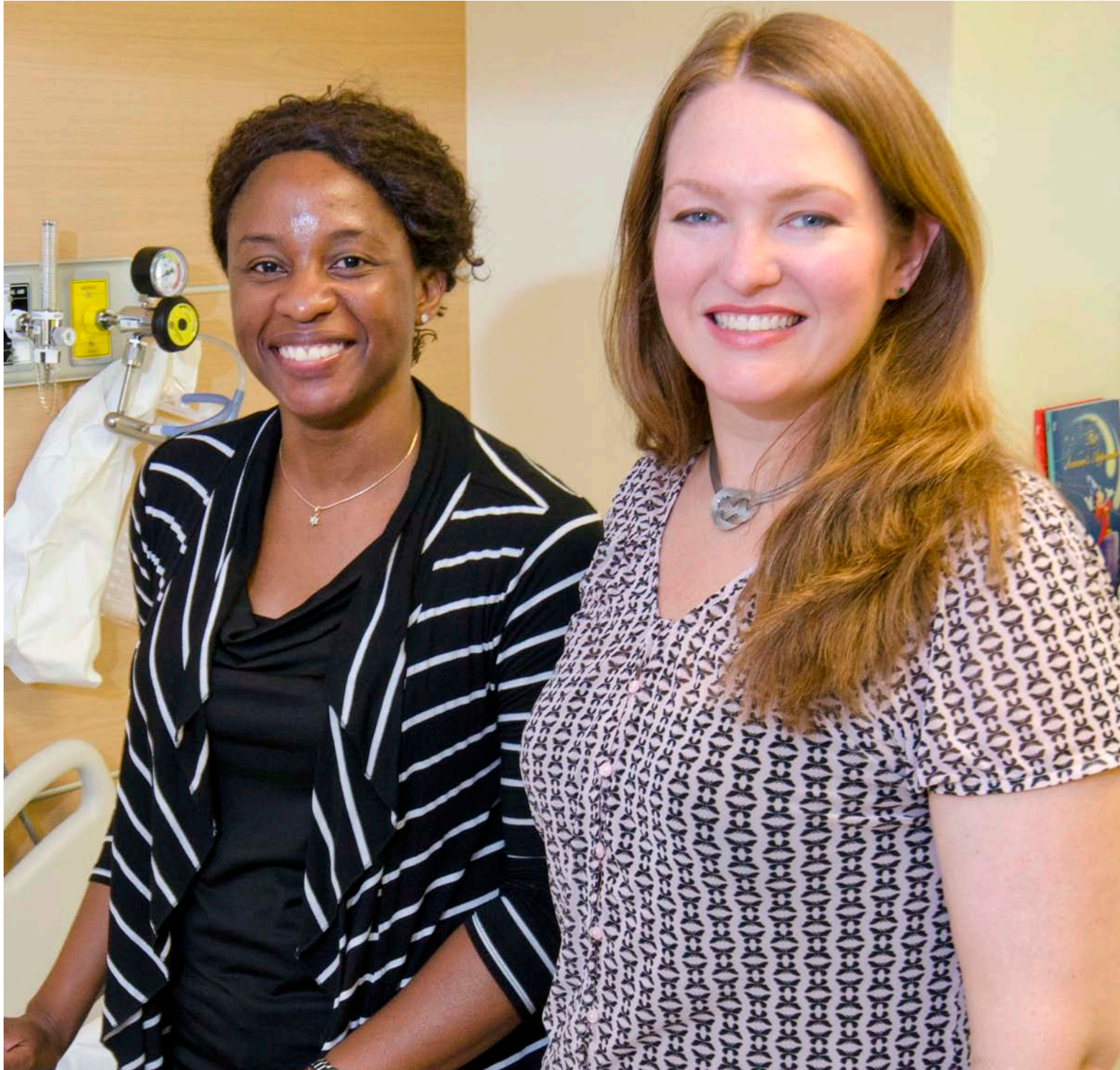
Dr. Lesleigh Abbott
 Dr. Natasha Alexander
 Dr. Ali Amid
 Dr. Julie Bennett
 Dr. Jack Brzezinski
 Dr. Sylvia Cheng
 Dr. Avram Denburg
 Dr. Fyeza Hasan
 Dr. Arnold Jacob
 Dr. Dave Lysecki
 Dr. Stacey Marjerrison
 Dr. Meera Rayar
 Dr. Jennifer Seelisch
 Dr. David Stammers
 Dr. Thai Tran
 Dr. Anita Villani
 Dr. Marta Wilejto

Research Fellows

Laura Avila
 Daniel Morgenstern
 Brent Williams

Administrative Staff

Ingrid Argiropoulos
 Hanadi Attar-Elbard
 Charmaine Borja
 Enda Brennan
 Meagan Cameira
 Sandra Carbone-Walker
 Denise Ferreira
 Michelle Gouveia
 Connie Grillo
 Tiffany Jimenez
 Natasha Lalji
 Catherine Lim Shue
 Philippa McCaffrey
 Eleanor Paulino
 Irine Polyzogopoulos
 Samantha Ramlackhan
 Ana Sofia Tiago
 Arlene Zaldivar
 Irene Zuniga



immunology and allergy

Joy Fitzwilliams and Julia Upton

Divisional Overview

Under the leadership of Dr. Grunebaum, the Division of Immunology and Allergy continues to be world-leading center for the diagnosis, understanding and management of primary immune deficiencies as well as complex allergic conditions.

The Primary Immunodeficiency (PID) Program in the Division of Immunology and Allergy at The Hospital for Sick Children is the largest of its kind in Canada and one of the largest in the world. Last year, we provided Medical services to more than 2000 patients, referred from physicians and hospitals locally, nationally and internationally. The number of referred patients has steadily increased over the last decade, reflecting enhanced awareness by health care providers as well as better appreciation of the immune system roles among growing number of human ailments, such as uncontrolled inflammation and malignancy (Coles, Paediatr Child Health 2013; O’Gorman et al., J Med Case Rep 2013; Bates et al., LymphoSign Journal. 2014). The division provides consultation and management services for children and adults with primary immune deficiencies through its various clinics and collaborates internationally in advancing care for such patients. Some clinics serve patients with complex immune abnormalities and genetic defects, thereby leading to improved diagnosis and classification of PID (Bousfiha et al., JOCI 2013). Other clinics are dedicated to the short-and long- term management of patients undergoing bone marrow transplantation or gene therapy for severe inherited immune deficiencies. Additionally, a novel clinic focusing on infants diagnosed through the newly implemented Ontario Newborn screening for severe immune deficiency was established this year, serving patients from all across the province. The Division is also responsible for the Immunology Isolation Unit, where every year 5-10 patients with various severe immune defects from across Canada are managed with life saving allogeneic hematopoietic stem cell transplantation or autologous gene corrected cells (Broides et al., J Clinical Cellular Immunology, 2014).

The innovative efforts and experience of our division in transplantation for PID is a model for many other centers across the world (Griffith et al., JACI 2014)).

The Division of Immunology and Allergy has been particularly active in improving the understanding and management of patients affected by inherited purine defects (Grunebaum et al, BJH 2013; Grunebaum et al., Curr Opin Allergy Clin Immunol. 2013). In addition, we contributed significantly to the understanding and management of other primary immune defects such as ZAP70 and CD3 deficiencies (Kim et al., JACI 2013; Poliani et al., JACI 2013; Muñoz-Ruiz et al., BMC Immunology 2013).

The Hypo-gammaglobulinemia Program at SickKids, established more than 20 years ago by Dr. Roifman and Brenda Reid CNS, is recognized globally for its innovative approach and long-term follow-up of over 200 patients requiring regular immunoglobulin replacement. This program transformed the therapy of hypo-gammaglobulinemic patients from multiple hospital-based admissions, to truncated visits at the short stay unit and subsequently to community treatment. The proficiency of our team coupled with convenient care at a medical centre closer to home, provides patients with the personalized treatment they require. To further improve care for some patients, home therapy programs using primarily subcutaneous infusions are underway. Additionally members of the division are involved in several studies assessing the safety and efficacy of new brands of immunoglobulins, many of them led internationally by Dr. Roifman.

The Allergy Program in our division focuses on the diagnosis and management of children with complex allergic diseases. These conditions include multiple or difficult to treat food, drug and latex allergy, anaphylaxis, urticaria and asthma.

Many patients with complex allergic diseases are seen each year by the division, while other patients are referred to the Division's community affiliated clinics of Drs. Asper, Feanny, Hummel and Lavi. Indeed the close interaction with the community is one of the strengths of the Allergy program. The Division also offers inpatient consultation for allergic diseases, such as expertise in adverse reactions to drugs (Hildebrand et al., *Pediatr Infect Dis J.* 2014), biological agents, anaesthetics and chemotherapy in medically complex children, including those suffering from cancer or receiving blood and organ transplants. For children with complex medical conditions suffering also from adverse drug reactions, the DART (Drug, Adverse Reaction and Toxicology Clinic) out-patient consultation clinic provides targeted diagnostic and management strategies, while collecting important data about this population. The DART clinic has demonstrated significant clinical impact in this vulnerable population. Some of the experience gained in the management of drug reactions was recently reported (Kavadas FD et al., *Allergy Asthma Clin Immunol.* 2013). Food allergy, affecting increasing number of children, is another major focus of the Division. Dr. Grunebaum has re-ignited the quest to establish a Food Allergy and Anaphylaxis focus within Sickkids. Indeed this year, generous funding, provided primarily by Amy Kaiser and Ken Rotman with the help of Sickkids Foundation, enabled our division to officially launch a Food Allergy and Anaphylaxis Program. This innovative program combines clinical, educational and research expertise for the advancement of the diagnosis, management and understanding of pediatric and adult severe allergic conditions. In addition, our Allergy team, with Dr. Upton as the PI and Dr. Hummel as a co-investigator, began a peer reviewed funded study that will help better diagnose and treat children with suspected milk allergy.

Providing education in Immunology and Allergy to trainees in pediatric and Adult program from the University of Toronto, across Canada and beyond continues to be the main focus for the Division. Dr. Grunebaum is the Director of the Pediatric Clinical Immunology and Allergy Residency Program. The training program also hosts all Sickkids pediatric residents for 4 weeks as well as up to 24 trainees from other pediatric, and or allergy/immunology programs from across Canada. Mrs. Sandra Mendonca has been instrumental in coordinating all these trainees. Dr. Roifman directs the high caliber trainees arriving for the internationally acclaimed immunology fellowship Program. Dr. Roifman also supervises research performed by many of the Division's trainees. Impressively, in 2013 our program underwent accreditation by the Royal College of Physicians and Surgeons of Canada and received an excellent review with no identifiable flaws, thereby continuing a flawless record since its establishment in 1990.

Staff Profiles

Dr. Grunebaum's research continues to focus on better understanding of the mechanisms and treatment for inherited purine defects, an important cause for severe immune deficiency in children (Manson et al., *Ped Radiol* 2013, Somech et al., *Immunol Res.* 2013, Grunebaum et al., *Curr Opin Allergy Clin Immunol.* 2013). Following the identification of a unique life threatening abnormality in the lungs of adenosine deaminase (ADA) deficient patients, a master student in Dr. Grunebaum's lab used animal and cell models to elucidate the mechanisms responsible for the lung phenotype, i.e. defect in surfactant metabolism (Dhanju et al., *JACI* 2014). In 2013, Dr. Grunebaum was also awarded the Donald and Audrey Campbell Research in Immunology Chair by The Hospital for Sick Children and the University of Toronto. This Chair enabled Dr. Grunebaum to initiate innovative studies of the role of regulatory T cells in various inherited and acquired immune dysregulation conditions. Additionally, with the support of the Food Allergy and Anaphylaxis Program, Dr. Grunebaum's lab has begun studying platelet-activating factor in severe allergic conditions.

Dr. Chaim Roifman continues to lead national and international initiatives in primary immune deficiency. Dr. Roifman, who is also the Chair & Scientific Director of not-for profit organization Immunodeficiency Canada, is one of the main driving forces in establishing newborn screening for severe immune deficiency in Ontario. He is now extending his efforts to include other Canadian provinces. In addition, Dr. Roifman launched and is the Chief Editor of a new open-access journal, *LymphoSign Journal*, dedicated to exploring the molecular basis and treatment of various immune disorders. Under the guidance of Dr. Roifman, The Jeffrey Modell Research Laboratory for the Diagnosis of PID (Canadian Center for PID) continues to help health care providers from various fields and countries in the diagnosis of complex immune abnormalities that significantly impact patients' management (Al-Zahrani et al., *JACI* 2013; Boonyawat et al. *J Clin Immunol* 2013; Sharfe et al., *JACI* 2013). Dr. Roifman also has contributed to international efforts to better understand the pathogenesis of many primary immune deficiencies (Berglund et al., *Blood* 2013). Dr. Roifman also moderated many of the quarterly Jeffrey Modell Canadian Immunodeficiency Network Video Conferences hosted by Immunodeficiency Canada, which has been attended by a rapidly growing number of participants from across Canada.

Dr. Adelle Atkinson is in her 9th year as the Director of Post Graduate Medical Education in the Department of Paediatrics. She continues to excel as an outstanding educator, and the training program continues to attract the brightest stars. In recognition of her achievements, Dr. Atkinson was nominated for the PAIRO Residency Program Excellence Award once again in 2013/14. The PAIRO Award recognizes Residency Program Directors who consistently provide an exceptionally positive and rewarding experience for the residents, while producing physicians who are expertly trained to deal with the challenges of their upcoming career. Dr. Atkinson was the recipient of the Harry Bain award in 2014 for excellence in Clinical teaching at The Hospital for Sick Children. Dr. Atkinson continues to give invited presentations at international conferences in the area of postgraduate medical education

and faculty development including topics such as residency selection, professionalism, clinical teaching and feedback. In the last two years, Dr. Atkinson has also led a Department of Pediatrics initiative to attract and retain pediatric trainees who will be our future clinician scientists. Dr. Atkinson is currently the Acting Associate Dean of Admissions and Financial Aid for the undergraduate medical program. In addition to the extensive educational commitments, Dr. Atkinson runs a novel clinic studying drug allergies in medically complex patients, providing an important clinical service to this tertiary care population.

Dr. Julia Upton, an Academic Clinician in the Division of Clinical Immunology and Allergy, continued her focus on food allergy this year. Her food allergy research on the evaluation of testing with baked milk to predict the safe ingestion of baked milk in unbaked milk allergic children started enrollment. Further work in allergy included a review of the treatment applications of an exciting biological substance involved in anaphylaxis called platelet-activating factor (PAF) (Upton J and Vadas P, *Current Treatment Options in Allergy* 2014) and an e-book chapter examining the utility of various tests as biomarkers of severe anaphylaxis (Upton J and Vadas P, *Biomarkers for Severity of Anaphylaxis*. Future Science Group, UK. 2014). Dr. Upton was the senior responsible author for the best case-report award at the annual allergy meeting of Canadian Society of Allergy and Immunology (Ching JCY et al, *Allergy, Asthma & Clinical Immunology* 2014). Dr. Upton contributed to clinical research in Immunology (Ngan B et al *LymphoSign Journal* 2014) and as a co-investigator evaluating a new intravenous gammaglobulin product. Dr. Upton is also extensively involved in the education of medical students, as well as trainees in Pediatrics and Allergy/Immunology. She contributed to the planning and execution of the first national OSCE for Clinical Immunology and Allergy trainees and was honored to accept the invitation to join the Royal College of Physicians and Surgeons Examination Committee for Clinical Immunology and Allergy.

Brenda Reid, Clinical Nurse Specialist, has been instrumental in providing leadership to nurses across the country in the management of primary immune deficient patients. She leads a network of nurses across the country in developing PID nursing protocols in conjunction with Immunodeficiency Canada. She works with Newborn Screening Ontario on SCID screening and has developed education materials and protocols for Newborn screen positive babies with severe immune deficiency. Additionally, Brenda has contributed enormously to the research and education generated by our division.

Honors and Awards

Atkinson, A: Winner of The Harry Bain Award in 2014 for excellence in clinical teaching at The Hospital for Sick Children, Toronto, Ontario, June 2014

Atkinson, A: Nominated for the PAIRO Residency Program Excellence Award, The Hospital for Sick Children, Toronto, Ontario, 2013-2014

Grunebaum, E: Winner of the Donald and Audrey Campbell Chair in Immunology, University of Toronto, Toronto, Ontario, 2013-2018

Upton, J: First place in abstract competition in “Case Reports” at the Canadian Society for Allergy and Clinical Immunology (CSACI) Toronto, Ontario, October 2013

Publications

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Coles N, Wolfe-Wylie M, Atkinson AR, O'Brien K, Unger S. Sepsis and shock in a term neonate. *Paediatrics and Child Health*. 2013 Nov 18 (9): pp 497-498.

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Books and Chapters

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Grants and Funding

Campbell Research in Immunology. Grunebaum E. **SickKids Foundation**. \$400,000 CAD. November 2013 – October 2018

Carrier-mediated delivery of therapeutic proteins into the brain. Melnyk R, Minassian SB, Josselyn S, Ellis J, Grunebaum E. **Brain Canada**. \$300,000 CAD. January 2014 – December 2016

Determinants of the microbiome in IBD by the Harvard Broad Institute – Toronto IBD Consortium. Xavier RJ, Lencer WI, Silverberg M, Muise AM, Snapper S, Croitoru K, Korzenik J, Bousvaros A. **Crohn's and Colitis Foundation of America Team Grant**. \$1,000,000 CAD. January 1-2011-December 31-2014

Food allergy research: Food allergy initiative. Kaiser A, Rotman K, Grunebaum E. **SickKids Foundation**. \$1,000,000 CAD. September 2013 – August 2018

Jeffrey Modell Research Laboratories for the diagnosis of primary immunodeficiencies. Roifman CM: **Jeffrey Modell Foundation**. \$250,000 CAD. January 2013 – December 2017

Multicenter, open-label, historically controlled, phase III study to assess the efficacy, tolerability, safety and pharmacokinetics of Kedrion IVIG 10% in adult and pediatric subjects with Primary Immunodeficiency (PID). Roifman CM, Upton J, Reid B, Kasprzak A, Murguia L. **Atlantic Research Group/Kedrion SPA**. \$21,000 CAD. January 2013-December 2013

Presentation and Outcome of Zap 70 deficiency. Roifman CM. **Jeffrey Modell Foundation**. \$50,000 CAD. January 2013 – December 2015

Presentation and outcome of Zap-70 deficiency. Roifman CM. **Immunodeficiency Canada**. \$300,000 CAD. January 2013-December 2018

SCID newborn screening at the Canadian Centre for Primary Immunodeficiency. Roifman CM. **Immunodeficiency Canada**. \$125,000 CAD. June 2013 – June 2018

The Canadian collaborative effort to discover the molecular basis underlying primary immunodeficiency and devise accordingly novel treatments. Roifman CM, Haddad E. **CI Society and Octapharma**. \$400,000 CAD. January 2013 – June 2016

T cell dysregulation in allergy. Grunebaum E. **SickKids Foundation**. \$50,000 CAD. May 2013 – April 2014

Staff

Division Head

Dr. Eyal Grunebaum

Full-Time

Dr. Adelle Atkinson
Dr. Chaim Roifman
Dr. Julia Upton

Clinical Assistant

Dr. Vy Kim

Part-Time

Dr. Maria Asper
Dr. Stephen Feanny
Dr. David Hummel
Dr. Sasson Lavi

Senior Scientist- Emeritus

Amos Cohen, PhD

Clinical Fellows

Dr. Nemer Al Otaibi
Dr. Yoram Faitelson

Subspecialty Residents

Dr. Amy French
Dr. Alison Haynes
Dr. Allison Kwan

Research Associate

Nigel Sharfe, PhD

Research Technologists

Lorand Cimpeon
Tom Grunberger
Ariana Karanxha
Weixian Min
Boris Perelman

Medical Lab Technologist

Harjit Dadi
Andrea Newell
Vikita Rana

Administrative Staff

Joanne Bresciani
Jessy DeBraganza
Megan Dunbar
Sandra Mendonca
Carrie Smith
Barbara Zimnowodski



infectious diseases

Debra Louch, Anu Wadhwa and Michelle Science

Divisional Overview

The Division of Infectious Diseases continues to be a leader in the academic practice of Infectious Diseases nationally and internationally. The Division has active inpatient as well as ambulatory consultant services that include teams that focus on general infectious diseases and infectious diseases in immunocompromised infants, children and youth. We are a resource for issues that relate to infectious disease outbreaks, including new and emerging infections, pediatric infection control and the specialized areas of HIV, congenital infections, the ever-increasing problem of multi-drug resistant tuberculosis and the management of the infectious complications of organ transplantation. The Division is recognized as a world-leader in the management of infections in transplant patients.

Division members have leading roles in national and international epidemiological, clinical, research advisory and related committees (e.g., the Infectious Diseases Society of America, the Canadian Paediatric Society, and the American Society for Transplantation, the International Pediatric Transplant Association, the Canadian AIDS Research Group, the SickKids Caribbean Cancer Initiative and the Government of the Bahamas).

Our research initiatives include multicentered paediatric HIV studies that relate to maternal-to-child transmission and studies on new antiretrovirals, vaccine studies and research into the mechanisms of host susceptibility to viral infections and related conditions. These conditions include EBV-related post-transplant lymphoproliferative disorder (PTLD), influenza illness, infections in patients with cystic fibrosis, HIV, and encephalitis. Multicentered trials relating to the diagnosis and prevention of infections in transplant patients are ongoing. In addition, we participate in national surveillance studies (IMPACT) and national collaborative paediatric studies through the Paediatric Investigators Collaborative Network on Infections in Canada (PICNIC).

The Division has continued to have a leadership role in structuring the approach to the management of major emerging and resurgent infectious disease threats.

The Division has been actively involved in the development and running of a travel medicine clinic at SickKids. The SickKids Family Travel Clinic provides one-on-one travel health advice, consultation and immunizations for adults and children, including young children with existing medical conditions that require a highly specialized approach to the prevention and management of travel-related infections.

We have one of the largest and most well-established pediatric infectious diseases training programmes internationally. Representatives from our Division continue to play a key role in activities of the Royal College of Physicians and Surgeons of Canada, and in many areas of undergraduate, graduate, post-graduate and continuing medical education activities. Faculty members continue to hold editorships, visiting professorships and related academic honours nationally and internationally.

Honors and Awards

Morris, S: Winner of March of Dimes Foundation Basil O'Connor Starter Scholar Research Award. March of Dimes, White Plains, New York, February 2014

Morris, S: Winner of Award for Teaching Excellence, Pediatric Resident Lecture Series. Department of Pediatrics, University of Toronto, The Hospital for Sick Children, Toronto, Ontario, June 4, 2014

Publications

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Allen UD and the Infectious Diseases and Immunization Committee. Antimicrobial stewardship in daily practice: Managing an important resource. Nicole Le Saux; Canadian Paediatric Society. *Paediatr Child Health* 2014; 19(4): 261-65

Allen UD. Canadian Paediatric Society, Infectious Diseases and Immunization Committee. *Clostridium difficile* in paediatric populations. *Paediatr Child Health* 2014; 19(1): 43-8

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Books and Chapters

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Grants and Funding

A toolkit to save newborn lives in rural Pakistan. Morris S, Bhutta Z. **UBS Optimus Foundation Global Health Grant**. \$150,000 Swiss Francs. April 2012 – April 2015

A toolkit to save newborn lives in rural Pakistan. Morris S, Bhutta Z. **Grand Challenges Canada Stars in Global Health**. \$113,000 CAD. February 2013 – August 2014

An Integrated Toolkit to Save Newborn Lives and Brains. Morris S, Bhutta Z. **March of Dimes Basil O'Connor Starter Scholar Research Award**. \$150,000 USD. February 2014-January 2016

An integrated toolkit to save newborn's brains. Morris S, Armstrong R. **Grand Challenges Canada Saving Brains Grant**. \$270,000 CAD. June 2013 – June 2015

Association of dietary patterns and biochemical vitamin D status with the severity of influenza in children. Furlong K, O'Connor DL, Tran D. **The Hospital for Sick Children, Research Institute, Research Training Competition (Restrcomp)**. \$22,500 CAD. September 2013 – August 2014

Association of vitamin D status and respiratory tract infection: a systemic review and meta-analysis of observational evidence. Furlong K, O'Connor DL, Tran D. **The Hospital for Sick Children, Research Institute, Trainee Start Up Fund Program**. \$3,000 CAD. October 2013 – September 2016

Baby Hero Foundation: Neonatal Kit Projects in Pakistan and Kenya. Morris S. **Baby Hero**. \$6000 CAD. January 2013 – January 2015

Canadian Immunization Network. Halperin, Alcantara J, Alary M, Allen UD, Beutels P, Bettinger J, Brisson M, Andrew M, Bolotin S. **Canadian Institutes of Health Research**. \$6,583,497 CAD. June 2014 – May 2017

Canadian Immunization Research Network (CIRN). Halperin S, Andrew M, Bettinger J, Bolotin S, Brisson M, Coleman B, Crowcroft N, De Serres G, De Wals P, Deeks S, Dube E, Fisman D, Hatchette T, Isenor J, Kwong J, Langley J, Loeb M, MacDougall H, Mahmud S, McNeil S, Naus M, Ogilvie G, Quach-Thanh C, Scheifele, Top K, Tran D, Van Buynder P, Vaudry W, Ward B, Watts T, Wilson K, Wilson S, et al. **Canadian Institutes of Health Research: Canadian Immunization Research Network.** \$6,600,000 CAD. July 2014 – June 2017

Canadian National Transplant Research Program: Increasing Donation and Improving Transplantation Outcomes. West L, Hebert MJ, Foster B, Mital S [Project 6 CNTRP Investigators (Dr. Allen is a co-investigator of Project 6 CNTRP)]. **Canadian Institutes of Health Research.** \$14,200,000. April 2013 – March 2018

Cellular aging and HIV comorbidities in women and children. Cote H, Bitnun A, Money D, Pick N, Soudeyns H, Brophy J, Janssen P, Kakkar F, Lapointe N, Murray M, Prior J, Silverman M, Singer J, Smith M. **Canadian Institutes of Health Research.** \$2,500,000 CAD. 2013 – 2018

Improving the transition process for HIV-infected adolescents in Canada-planning grant. Brophy J, Kakkar F, Bitnun A, Read S, Samson L, Clark M, Alimenti A, Forbes J, Vaudry W, Lapointe N, Lammarre V, Boucher F, Morin G, Karatzios C, Seigel S, Arbess G, Gough K, Angel J, Loutfy M, Klein M, Hart T, Salter R, Kennedy L, Palmer A, Shindler S, Kaufman M. **Canadian Institutes of Health Research.** \$25,000 CAD. 2013 – 2014

Economic appraisals of seasonal influenza vaccines in low and middle income countries. Jit M, Morris S. **World Health Organization (WHO).** \$25,000 USD. November 2013-November 2014

Getting to Zero: Male circumcision in the Bahamas. George C, Brennen D, Roberts R, Read S. **CANFAR.** \$160,000 CAD. 2012-2014

Maternal, newborn, and child health (MNCH) coalition knowledge management initiative.. Zlotkin, S, Barwick M. Collaborators: Roth D, Bassani D, Morris, S, Bhutta Z, Wong J, Stein J, Hayford K, Arnold W. **Care Canada, Plan Canada, Save the Children Canada, World Vision Canada.** \$1,070,000 CAD. Jun 15-2012 – Feb 28-2015

Neurodevelopmental outcomes of pre- and perinatal exposure to antiretroviral treatment in HIV uninfected children. Smith M, Read SA, Bitnun A. **CANFAR.** \$80,000 CAD. 2012 – 2014

Nevirapine dosing in neonates for prophylaxis of mother-to-child-transmission (MTCT) of HIV infection. Bitnun A, Lau E, Read S. **CANFAR.** \$20,528 CAD. 2011 – 2013

Parathyroid-vitamin D axis dysregulation in early-onset infant stunting in resource-poor settings. Roth D, Zlotkin S, Willan A, Weksburg R, Adeli K, Morris, S, Mahmud A, Ahmed T, Baqui A, Shah R. **The Bill & Melinda Gates Foundation.** \$2,342,887 USD. 2012-2016

Pediatric HIV infection: exploring determinates of a functional cure. Soudeyns H, Bitnun A, Brophy J, Hawkes M, Kakkar F, Kaul R, Lapointe N, Lavoie P, Read SE, Samson L, Vaudry W. **Canadian Institutes of Health Research.** \$1,982,500 CAD. 2013-2018

Prevalence and determinants of early childhood under vaccination in Toronto primary care practices. Tran D, MaGuire J, Birken C, Parkin P, Thorpe K. **Paediatric Consultants Creative Partnership Grant, The Hospital for Sick Children.** \$9,913.25 CAD. April 2014 – March 2016

Primary EBV infection in the immunosuppressed setting of organ transplantation: Determinants of the outcomes of virus-host interaction. Allen UD, Beyene J, Dipchand, AI, Grunebaum E, Hebert D, Husain S, Mazzulli T, NG V, Read SE, Robinson JL, Tellier R, Weitzman SS. **Canadian Institutes of Health Research.** \$509,125 CAD. 2010-2014

Prospective surveillance for pediatric TB disease in Canada. Kitai I, Morris S. **Canadian Paediatric Surveillance Program.** \$22000 CAD for the first year and \$18 000 CAD in subsequent years. 2013 – 2016

Prospective Surveillance of Tuberculosis in Canadian Children. Morris S, Kitai I. **Canadian Pediatric Surveillance Program and Public Health Agency of Canada.** \$40,000 CAD. January 2013 – January 2015

Prospective Surveillance of Tuberculosis in Canadian Children. Morris S (PI), Kitai I. **The Hospital for Sick Children Department of Pediatrics Grant for Creative Professional Activity.** \$10,000 CAD. April 2014-April 2016

Severe influenza in infants, children and youths: Role of clinical and epidemiologic risk factors. Tran D, Halperin S, Bettinger JA, Dery P, Gubbay JB, Ipp MM, Le Saux NM, Loeb MB, McGeer AJ, Moore DL, O'Connor DL, Richardson SE, Salvadori MI, Sauve LJ, Schuh S, Vaudry WL. **Canadian Institutes of Health Research: Operating Grant.** \$776,835 CAD. March 2012 – February 2016

Staff

Division Head

Dr. Upton D. Allen

Full-Time

Dr. Ari Bitnun

Dr. Shaun Morris

Dr. Michelle Science

Dr. Dat Tran

Dr. Anu Wadhwa,
Training Program Director

Dr. Valerie Waters

Part-Time

Dr. Jonathan Gubbay

Dr. Ian Kitai

Dr. Stanley Read

Cross-Appointees

Dr. Anna Banerji

Short-Chain Fatty Acids in the Cystic Fibrosis Lung. Grasemann H, Waters V. **SickKids CF Center.** \$50,000 CAD. February 1-2014-January 31-2015

Start Up Operating. Morris S. **The Hospital for Sick Children, Research Institute.** \$300,000 CAD. October 2013-October 2016

Start Up Support. Morris S. **The Hospital for Sick Children, Department of Pediatrics.** \$150,000 CAD. January 2012-December 2014

The CF lung microbiome and persistent versus eradicated *Pseudomonas aeruginosa*. Waters V, Guttman D. **US CF Foundation.** \$83,000 USD. April 1 2014-March 31-2016

The role of *Pseudomonas aeruginosa* and the lung microbiome in *Pseudomonas* eradication in cystic fibrosis. Waters V. **Canadian Foundation of Infectious Diseases Summer Student Research Award (Lauren Smith).** \$4,000 CAD. May 1-2014-August 31-2014

Clinical Fellows

Dr. Rabee Adwan

Dr. Nadia Alattas

Dr. Anila Chacko

Dr. Hoan Le

Research Fellows

Dr. Sarah Khan

Dr. Faisal Kordy

Dr. Kevin Schwartz

Administrative Staff

Brenda Bishop

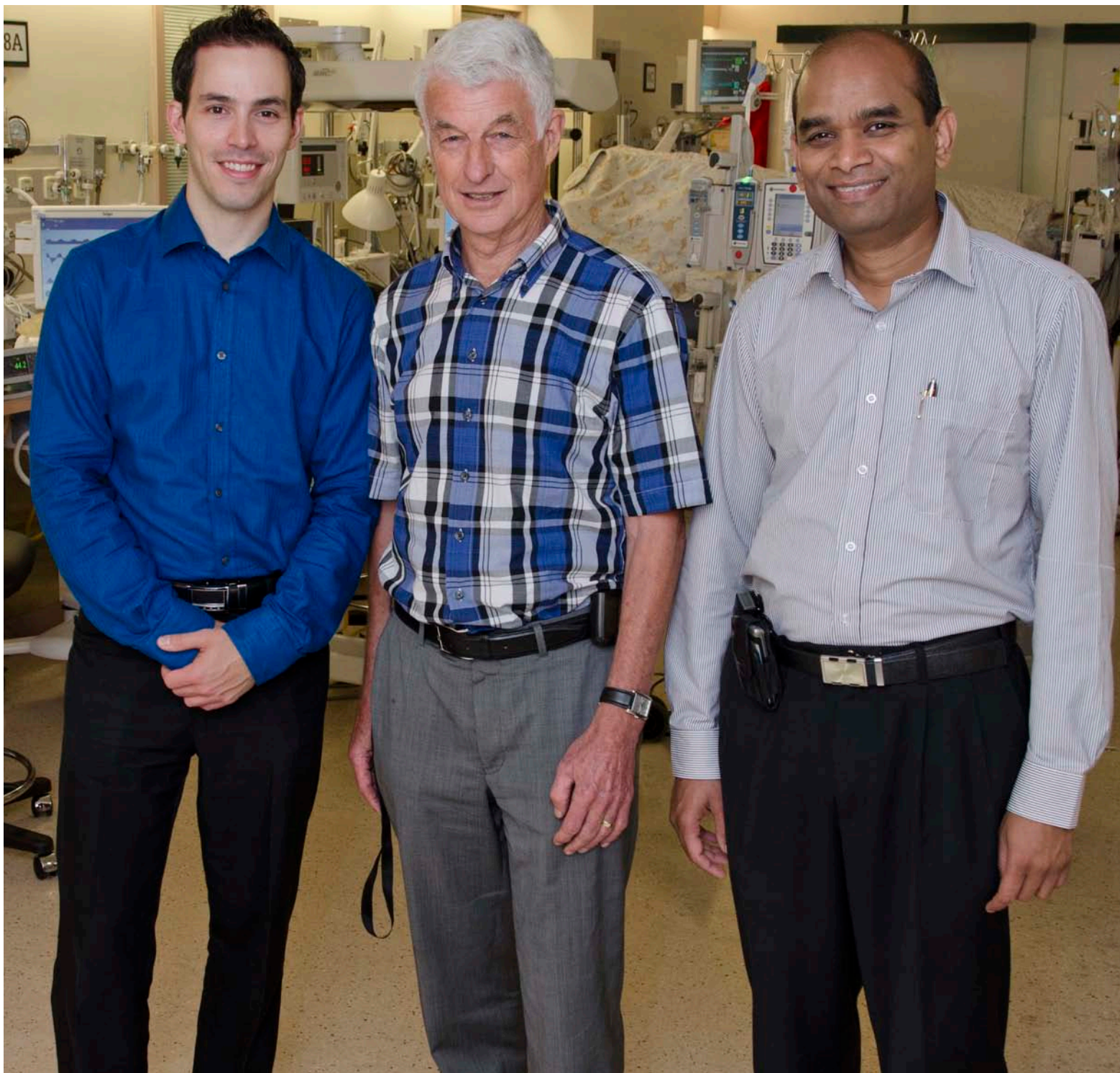
Christina Carey

Jenna Craig

Erin Manych

Linda Martin

Deborah Taylor



neonatology

Dany Weisz, Andrew James and Prakesh Shah

Divisional Overview

Dr. Keith Tanswell retired from clinical practice in December 2013. The Division of Neonatology is immensely grateful to Dr. Tanswell for his many years of service and leadership and wishes him a happy and rewarding retirement. Congratulations to Dr. Eugene Ng on his appointment as Chief, Department of Newborn and Developmental Paediatrics, at the Sunnybrook Health Sciences Centre. The Division also applauds Dr. Hilary Whyte on her appointment as Medical Director of SickKids International. Dr. Whyte has stepped down as Medical Director of the NICU, but will continue as the medical lead of the Acute Care Transport Services (ACTS). The Medical Directorship of the SickKids NICU has been taken up on an interim basis by Dr. Andrew James. We wish all appointees every success in their new leadership roles.

The Level III perinatal NICUs at the Mount Sinai Hospital and Sunnybrook Health Sciences Centre remain extremely busy. In the past year, the Mount Sinai Hospital NICU changed to a mixed Level II/III acuity model in preparation for their much anticipated move to a new state-of-the-art facility in October 2014. Over the past year, the SickKids NICU, in collaboration with the Division of Neurology, established a neonatal neurocritical care service, incorporating enhanced monitoring and follow-up of newborns with brain injury.

The Division's Neonatal-Perinatal Fellowship Training Program is one of the largest in North America, attracting trainees from almost every continent. Recent times have seen a surge in applications from Canadian-trained Residents. We heartily congratulate our Fellowship trainees who notched up a 100% success rate in the recent FRCP(C) examinations. The Annual Neonatal Research Day was again a great success. Dr. Prakesh Shah, who led the Research Day organizing committee for many years, has now handed over the reins to Dr. Dany Weisz. A structured training program in echocardiography continues to be offered to selected trainees, leading to neonatologist-performed echocardiography being adopted and supported at all three sites.

Research output from the Division of Neonatology remains robust and members of the Division at all three sites continue to be well-supported by major funding agencies. Of particular note, Dr. Prakesh Shah was awarded a CIHR Applied Chair in Reproductive, Child and Youth Health Services and Policy Research. Significant funding and research output at Mount Sinai Hospital is derived from activities based around the Canadian Neonatal Network (CNN) database and by CNN-led quality-improvement initiatives. Dr. Sharon Unger continues as the clinical lead on several large multi-centre clinical trials studying benefits of human milk and human-milk-based fortification. At SickKids, basic research in Lung Biology continues to be a strong focus as is echocardiography-based research on the ductus arteriosus conducted by Dr. Patrick McNamara. A large amount of collaborative research is also undertaken with Faculty from the Divisions of Surgery and Neurology and in health informatics with Faculty from the University of Ontario Institute of Technology. Clinical trials remain a focal point at Sunnybrook under the leadership of Dr. Elizabeth Asztalos, who continues to head the Centre for Mother, Infant and Child Research.

Honors and Awards

Lewis, J: Recipient of the Certificate of Appreciation for Bioethics Week, Poster Award, The Hospital for Sick Children, Toronto, Ontario, Canada, 2013.

McNamara, P: Winner of the Robert Good New Faculty Award for Sustained Teaching Excellence, Department of Physiology, University of Toronto, Toronto, Ontario, Canada, 2013.

McNamara, P: Winner of the Pediatric American Society Travel Award for Predictors of Post-Ligation Cardiac Syndrome in Neonates after Introduction of Targeted Milrinone Treatment, Pediatric Academic Societies Annual Meeting, Vancouver, British Columbia, Canada, 2014.

Whyte, H: Winner of the Patient & Family Centered NICU Design Competition, Stantec Architecture and The Hospital for Sick Children, Institute for Patient-Centered Design Inc, Atlanta, Georgia, USA, 2013.

Publications

Clyman RI, Wickremasinghe A, Merritt TA, Solomon T, McNamara P, Jain A, Singh J, Chu A, Noori S, Sekar K, Lavoie PM, Attridge JT, Swanson JR, Gillam-Krakauer M, Reese J, DeMauro S, Poindexter B, Aucott S, Satpute M, Fernandez E, Auchus RJ, Patent Ductus Arteriosus Ligation/Hypotension Trial Investigators. Hypotension following patent ductus arteriosus ligation: The role of adrenal hormones. *Journal of Pediatrics* 2014; 164 (6): pp 1449-1455.

Diamond IR, Grant R, Feldman BM, Tomlinson G, Pencharz P, Ling SC, Moore AM, Wales PW. Expert beliefs regarding novel based approaches to pediatric intestinal failure associated liver disease. *JPEN Journal of Parenteral and Enteral Nutrition* 2013: Epub 2013 Aug 13.

Dunlop K, Gosal K, Dhaliwal R, Kantores C, Ivanovska J, Desjardins JF, Connelly KA, Jain A, McNamara PJ, Jankov RP. Therapeutic hypercapnia prevents inhaled nitric oxide-induced right ventricular systolic dysfunction in juvenile rats. *Free Radical Biology & Medicine* 2013; 69: pp 35-49.

El-Khuffash AF, Jain A, Weisz D, Mertens L, McNamara PJ. Assessment and treatment of post patent ductus arteriosus ligation syndrome. *Journal of Pediatrics* 2014; 165 (1): pp 46-52.

El-Khuffash A, Jain A, Corcoran D, Shah PS, Hooper CW, Brown N, Poole SD, Shelton EL, Milne GL, Reese J, McNamara PJ. Efficacy of paracetamol on patent ductus arteriosus closure may be dose dependent: Evidence from human and murine studies. *Pediatric Research* 2014: Epub 2014 Jun 18.

Enomoto M, Jain A, Pan J, Shifrin Y, Van Vliet T, McNamara P, Jankov RP, Belik J. Newborn rat response to single versus combined cGMP-dependent vasodilators. *American Journal of Physiology: Lung Cellular and Molecular Physiology* 2014; 306 (2): pp 207-215.

Enomoto M, Pan J, Shifrin Y, Belik J. Age-dependency of vasopressin pulmonary vasodilatory effect in rats. *Pediatric Research* 2014; 75 (2): pp 315-321.

Haddad H, Lee KS, Higgins A, McMillan D, Price V, El-Naggar W. Routine surveillance ultrasound for the management of central venous catheters in neonates. *Journal of Pediatrics* 2014; 164 (1): pp 118-112.

Hochwald O, Jabr M, Osiovič H, Miller SP, McNamara PJ, Lavoie PM. Preferential cephalic redistribution of left ventricular cardiac output during therapeutic hypothermia for perinatal hypoxic-ischemic encephalopathy. *Journal of Pediatrics* 2014; 164 (5): pp 999-1004.

Jefferies AL, Canadian Paediatric Society Fetus and Newborn Committee. Going home: Facilitating discharge of the preterm infant. *Paediatrics & Child Health* 2014; 19 (1): pp 31-36.

Kassierer MY, Welsh C, Pan J, Shifrin Y, Belik J. Metoclopramide does not increase gastric muscle contractility in newborn rats. *American Journal of Physiology-Gastrointestinal and Liver Physiology* 2014; 306 (5): pp 439-444.

Keir A, Callum J, Jankov RP. Is it safe to co-infuse dextrose-containing fluids with red blood cells? *The Journal of Paediatrics and Child Health* 2013; 49 (8): pp 687-691.

Kirpalani H, Millar D, Lemyre B, Yoder BA, Chiu A, Roberts RS, NIPPV Study Group. A trial comparing noninvasive ventilation strategies in preterm infants. *The New England Journal of Medicine* 2013; 369 (7): pp 611-620.

Lee AH, Dhaliwal R, Kantores C, Ivanovska J, Gosal K, McNamara PJ, Letarte M, Jankov RP. ROCK inhibitor prevents bleomycin-induced injury in neonatal rats independent of effects on lung inflammation. *American Journal of Respiratory Cell and Molecular Biology* 2014; 50 (1): pp 61-73.

Leslie AT, El-Khuffash A, Jain A, Keyzers M, Rogerson S, McNamara PJ. Impact of patent ductus arteriosus ligation on cerebral electrical activity in preterm infants. *Journal of Perinatology* 2013; 33 (11): pp 861 – 866.

Mateo PC, Lee KS, Barozzino M, Sgro M. Management of neonatal jaundice varies by practitioner type. *Canadian Family Physician* 2013; 59 (8): pp e379-e385.

Masood A, Yi M, Lau M, Belcastro R, Li J, Kantores C, Pace-Asciak CR, Jankov RP, Tanswell AK. Cyclooxygenase-2 inhibition partially protects against 60% oxygen-mediated lung injury in neonatal rats. *Pediatric Pulmonology* 2013: Epub 2013 Nov 13.

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Silva CT, Daneman A, Navarro OM, Moineddin R, Levine D, Moore AM. A prospective comparison of intestinal sonography and abdominal radiographs in a neonatal intensive care unit. *Pediatric Radiology* 2013; 43 (11): pp 1453-1463.

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Thommandram A, Pugh J E, Eklund J. M, McGregor C, James A. Classifying Neonatal Spells Using Real-Time Temporal Analysis of Physiological Data Streams. *Algorithm Development 2013 IEEE Point-of-Care Healthcare Technologies* 2013: pp 240-243.

Weisz DE, More K, McNamara PJ, Shah PS. PDA Ligation and health outcomes: A meta-analysis. *Journal of Pediatrics* 2014; 133 (4): pp e1024-e1046.

Whyte HE, Blaser S. Limitations of routine neuroimaging in predicting outcomes of preterm infants. *Neuroradiology* 2013; 55 (Suppl 2): pp 3-11.

Whyte RK, Jefferies AL, Canadian Paediatric Society Fetus and Newborn Committee. Red blood cell transfusion in newborn infants. *Paediatrics & Child Health* 2014; 19 (4): pp 213-217.

Books and Chapters

Belik J, Weinmann A, Unger S. Tetrahydrobiopterin in human milk: Health benefits for the newborn. In: Dietary and nutritional aspects of human breast milk (Preedy V, Watson RR, Zibadi S, eds). Wageningen Academic Publishers, Netherlands 2013: pp 414-503.

El-Khuffash A, McNamara PJ. Parent ductus arteriosus (PDA). In: Neonatology at a Glance 2nd Edition (Lissauer T, Fanaroff AA, eds). Wiley-Blackwell Publishing, West Sussex UK 2014: pp 80-81.

McNamara PJ, El-Khuffash A. Echocardiography for the neonatologist. In: Neonatology at a Glance 2nd Edition (Lissauer T, Fanaroff AA, eds). Wiley-Blackwell Publishing, West Sussex UK 2014: pp 190-191.

Grants and Funding

Hypercapnia as therapy for neonatal pulmonary hypertension. Jankov RP **Canadian Institutes of Health Research**. \$579,880 CAD. May 1-2011-March 31-2014

Improving quality of care during transport of sick neonates: A national collaborative partnership for outcome improvement and system enhancement. Lee KS, Whyte H, Shah P, Barrington K, Lee S, Mirea L, Redpath S. **Canadian Institute of Health Research Partnerships for Health System Improvement Grant**. \$524,644 CAD. June 1-2013-May 31-2016

Long-term cardiorespiratory outcomes of extremely preterm infants: A workshop to guide development of a current Canadian study. Katz SL, Jankov RP. **Canadian Institutes of Health Research**. \$24,973 CAD. March 01-2014-February 28-2015

Neonatal protein and energy metabolism. Pencharz P, Tomlinson C, Ball RO. **Canadian Institutes of Health Research**. \$739,355 CAD. July 1-2012-June 30-2017

Neurological outcome of hypoglycemia in neonatal encephalopathy. Yun EW, Bryant R, Ly L, Poskitt K, Zwicker J, Chau V, Mamak E, Solimano A, Connolly M, Miller S, Synnes A, Hahn C, Moore A, Widjaja E. **Canadian Institute of Health Research**. \$703,745 CAD. April 1-2014-March 31-2019

Oxidative stress and neonatal pulmonary vascular resistance control. Belik J. **Canadian Institutes of Health Research**. \$597,193 CAD. April 01-2009-March 31-2014

Phase II development of TnECHO app – PPHN and PDA. McNamara PJ, El-Khuffash A. **Icaria Inc**. \$18,000 CAD. November 1-2013-December 31-2014

Preclinical assessment of rho-kinase inhibitors for chronic pulmonary hypertension. McNamara PJ, Jankov RP. **Canadian Institutes of Health Research**. \$655,855 CAD. April 1-2011-March 31-2016

Systemic hypotension following patent ductus arteriosus (PDA) ligation: The role of adrenal maturity. Clyman R, McNamara PJ. **Thrasher Foundation**. \$33,170 CAD. September 1-2012-July 31-2013

Staff

Division Head

Dr. Hilary Whyte
Dr. Keith Tanswell
(University of Toronto, until December 2013)
Dr. Robert Jankov
(Interim, University of Toronto, January 2014 to Present)

Full-Time

Dr. Jaques Belik
Dr. Andrew James
Dr. Robert Jankov
Dr. Kyong-Soon Lee
Dr. Linh Ly
Dr. Patrick McNamara
Dr. Aideen Moore
Dr. Christopher Tomlinson

Cross-Appointees

The Hospital for Sick Children

Dr. Rosemary Moodie

Mount Sinai Hospital

Dr. Dalal Abdelgadir
(Temporary Privileges)
Dr. Olufunmi Akindele
Dr. Yenge Diambomba
Dr. Emer Finan
Dr. Amish Jain
Dr. Ann Jefferies
Dr. Edmond Kelly
Dr. Shoo Lee
Dr. Adel Mohamed
Dr. Karel O'Brien
Dr. Martin Offringa
(Temporary Privileges)
Dr. Prakesh Shah
Dr. Vibhuti Shah
Dr. Sharon Unger
Dr. Jennifer Young
Dr. Kin Fan Young Tai

St. Joseph's Hospital

Dr. Dilip Mehta

St. Michael's Hospital

Dr. Douglas Campbell

Sunnybrook Health Sciences Centre

Dr. Elizabeth Asztalos
Dr. Paige Church
Dr. Michael Dunn
Dr. Eugene Ng
Dr. Martin Skidmore
Dr. Dany Weisz

Toronto East

General Hospital
Dr. Jelena Popovic

Clinical Fellows

Dr. Mutih Abu Awwad
Dr. Mohamed Shalabi
Ahmed
Dr. Kerstin Allvin
Dr. Anil Chacko
Dr. Poorva Deshpande
Dr. Mong Tieng Ee
Dr. Omar Elkhateeb
Dr. Amir Elmekkawi Mohamed
Dr. Amr El Shahed
Dr. Abu Ismail
Dr. Hiroko Iwami
Dr. Siyuan Jiang
Dr. Kaarthigeyan Kalaniti
Dr. Yair Kasirer
Dr. Amy Keir
Dr. Jillian Lewis
Dr. Deepak Louis
Dr. Kiran More
Dr. Donna Nicholls
Dr. Jyothsna Purna
Dr. Asaph Rolnitsky
Dr. Vivek Shukla
Dr. Miroslav Stavel
Dr. Marlon Timothy
Dr. Jessie Van Dyk
Dr. Qian Yang
Dr. Yue Yao

Subspecialty Residents

Dr. Mariam Ayed
Dr. Michael Castaldo
Dr. Regan Giesinger
Dr. Kristen Godin
Dr. Jaideep Kanungo
Dr. Amit Mukerji
Dr. Julia Panczuk
Dr. Amy Shafey
Dr. Jonathan Wong

Research Fellows

Dr. James Edward Pugh
Dr. Nuerya Reijiafu
Dr. Yanyu Lyu
Dr. Rishikesan Kamaleswaran
Dr. Narges Afshar
Dr. Maura Resende
Dr. Nadja Bressan
Dr. Fernando Martins
Dr. Tanvi Naik

Honorary Faculty

Dr. Jonathan Hellmann
Dr. Max Perlman
Dr. Paul Swyer

Administrative Staff

Gaby Argumedo
Sonia Dos Santos
Katie Fox
Judy Grundy
Ashley Sintra
Nicole Smith
Diana Soares



nephrology

Damien Noone

Divisional Overview

In 2013-2014, the complexity of clinical care delivered and the number of patients treated by the Nephrology team continued to grow. The Nephrology Fellowship program saw a number of changes that further enhanced the opportunities for state-of-the-art clinical and research training. The research profile of the division continues to increase, as demonstrated by the number of successful grant applications, the high quality of the journals in which the work is published, and the number of invitations to speak at leading national and international conferences.

We were fortunate to recruit two new faculty members to the Division of Nephrology in 2014. Dr. Damien Noone, who completed his fellowship training in Ireland, England, and here at SickKids, will participate in all aspects of care of children with kidney disease, with a special focus on the renal manifestations of systemic vasculitis. Dr. Mathieu Lemaire completed his clinical fellowship training at SickKids, followed by advanced research training in Genetics at Yale University. Dr. Lemaire will participate in the care of children with genetic forms of kidney disease, and his research program will aim to elucidate the underlying mechanisms of such disease. The recruitment of these two rising stars will undoubtedly allow the Division of Nephrology to develop unique innovations in clinical care and scientific discovery.

Publications

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Johnson S, Stojanovic J, Ariceta G, Bitzan M, Besbas N, Frieling M, Karpman D, Landau D, Langman C, Licht C, Pecoraro C, Riedl M, Siomou E, van de Kar N, Vande Walle J, Loirat C, Taylor M. An audit analysis of a guideline for the investigation and initial therapy of diarrhea negative (atypical) hemolytic uremic syndrome. *Pediatric Nephrology* 2014 May 11. [Epub ahead of print].

Kashtan C, Ding J, Gregory M, Gross O, Heidet L, Knebelmann B, Rheault M, Licht C. Clinical practice recommendations for the treatment of Alport syndrome: A statement of the Alport Syndrome Research Collaborative. *Pediatric Nephrology* 2013; 28(1): pp 5-11.

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Books and Chapters

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Grants and Funding

A pharmacogenetic trial of tacrolimus after pediatric transplantation. Mital S, Parekh RS. **SickKids Transplant Centre Catalyst Grant**. \$150,000 CAD. January 2012-January 2014

Canadian National Transplant Research Program: Increasing donation and improving transplantation outcomes. West LJ, Mital S, Parekh RS. **Canadian Institutes of Health Research**. \$1,370,000 CAD. January 2013-January 2018

Chronic Kidney Disease in Children (CKiD). Warady B, Pan C, Wong C, Al-Uzri A, Jenkins R, Goebel J, Mitsnefes M, Grimm P, Alexander S, Rodig N, Harmon S, White C, Fathallah S, Hmiel PS, Dell K, Turman M, Flynn J, Wood E, Blydt-Hansen T, Salusky I, Yadin O, Benador I, Mak R, Seikaly M, Portale A, Morgenstern B, Greenbaum L, Jones D, Atkinson M, Matoo T, Langman C, Kher K, Patel H, Seo-Mayer P, Andreoli S, Mendley S, Gipson D, Ferris M, Samuels J, Samsonov D, Kaskel F, Brophy P, Kupferman J, Saland J, Srivaths P, Lande M, Schwartz G, Norwood V, Weiss L, Neiberger R, Cai Y, Massengill S, Mongia A, John E, Furth S, Parekh RS, Robinson LA, Hidalgo G, Lakkis R. **The Children's Hospital of Philadelphia Research Institute**. \$19,660 CAD. January 2012-January 2018

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2008-January 2014

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2009-January 2015

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2010-January 2016

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2011 – January 2017

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2012-January 2018

CIHR MD/PhD Grant. Rosenblum ND. **Canadian Institutes of Health Research**. \$660,000 CAD. January 2013-January 2019

Control of cerebellum cell specification, migration and organization by SUFU. Rosenblum ND. **Canadian Institutes of Health Research**. \$734,120 CAD. June 2011-June 2016

Control of complement-mediated platelet activation in aHUS via eculizumab. Licht C. **Alexion Pharmaceuticals, Inc**. \$15,000 USD. January 2012-December 2013

Control of kidney cell determination and morphogenesis by BMPs and beta-catenin. Rosenblum ND. **Canadian Institutes of Health Research**. \$767,080 CAD. January 2008-September 2013

Control of renal branching morphogenesis by hedgehog-Gli3 signaling. Rosenblum ND. **The Kidney Foundation of Canada**. \$100,000 CAD. January 2012 – January 2014

Conversion of stable renal transplant patients from immediate-release tacrolimus (prograf) to extended-release tacrolimus (advagraf). Hébert D, Robinson LA, Langlois V, Nalli N, Leung C, Pollock-BarZiv S. **Astellas Pharma Canada, Inc**. \$146,000 CAD. January 2009 – Present

Developmental nephrology (Tier I). Rosenblum ND. **Canada Research Chairs Program**. \$1,400,000 CAD. January 2012-January 2019

Discovery of Novel Targets and Development of Treatments for Complement-Mediated Disease. Licht C. **2014 Accelerator Grant in Genomic Medicine, McLaughlin Centre, University of Toronto**. \$30,000 CAD. January 2014-January 2015

Eculizumab in alport syndrome. Licht C. **The Kidney Foundation of Canada**. \$100,000 CAD. January 2012-December 2013

Functions of Hedgehog-Gli-dependent signaling in stromal cells during normal and malformed mammalian kidney development. Rosenblum ND. **Canadian Institutes of Health Research**. \$900,000 CAD. January 2013-January 2018

Hereditary Causes of Nephrolithiasis and Kidney Failure. Milliner DS, Harvey EA. **National Institutes of Health, National Center For Advancing Translational Sciences & National Institute Of Diabetes And Digestive And Kidney Diseases**. \$1,222,963 USD. September 2009-June 2014

Historical MPGN Cohort. Licht C. **Alexion Pharmaceuticals, Inc**. \$28,525 USD. January 2012 – January 15

Human heredity and health in Africa (H3Africa): Collaborative centers (U54). Ojo A, Parekh RS. **National Institutes of Health**. \$5,931,722 USD. January 2012-January 2017

Longitudinal study of dialysis (PACE study). Parekh RS. **National Institutes of Health/National Institute of Diabetes and Digestive and Kidney Diseases**. \$138,889 USD. October 2012-September 2013

Modulation of vascular injury by the motility regulators, slit and roundabout. Robinson LA. **Canadian Institutes of Health Research**. \$616,945 CAD. July 2011-June 2016

Multi-center controlled clinical trials in alport syndrome – A feasibility study. Kashtan CE, Licht C. **National Institutes of Health Exploratory/Developmental Research Grant Award**. \$47,898 USD. January 2012-December 2014

Non-invasive monitoring of pediatric kidney allograft injury to improve diagnosis and patient outcome. Blydt-Hansen T, Langlois V, Hamiwka LA, Morgan C, Sharma A, Matsell DG, Lau K, Tsampalierio A, Feber J, Phan V, Gibson I, Ho J, Mital S, Nickerson P, Wishart D. **Canadian Institutes of Health Research**. \$951,777 CAD. January 2013-January 2018

Primary EBV infection in the immunosuppressed setting of organ transplantation: Determinants of the outcomes of virus-host interaction. Allen UD, Beyene J, Dipchand AI, Grunebaum E, Hébert D, Husain S, Mazzulli T, Ng VL, Read SE, Robinson JL, Tellier R, Weitzman SS. **Canadian Institutes of Health Research**. \$509,125 CAD. April 2010-October 2014

Quantitative analysis of the efficacy of renvela to chelate phosphate in 2 commonly used renal formulas, and the effect of renvela on trace element composition. Harvey E, Licht C, Mehrfar P. **The Hospital for Sick Children, Paediatric Consultants Creative Professional Activity Grant**. \$3,231 CAD. December 2012 – November 2013

Regulation of leukocyte-endothelial interactions. Robinson LA. **Natural Sciences and Engineering Research Council of Canada**. \$170,000 CAD. June 2012-June 2017

TAKE IT: Teen Adherence in kidney transplant effectiveness of intervention trial. Foster B, Furth S, Hébert D. **National Institutes of Health**. \$757,183 USD. September 2011-May 2016

Teens Taking Charge – Managing my Transplant Online: A Feasibility Study. Korus M, Parekh RS. **Canadian Institutes of Health Research -Catalyst Grant: e-Health Innovations**. \$86,704 CAD. June 2014-June 2015

The aging kidney in HIV-infection: Biomarkers for early detection of injury. Shlipak MG, Parekh RS. **National Institutes of Health/National Institute of Diabetes and Digestive and Kidney Diseases**. \$2,464,480 USD. January 2010-January 2015

The nephroprotective potential of eculizumab using COL4A3 knockout (nephrosclerotic) mice in a proof-of-concept study. Licht C. **Alexion Pharmaceuticals, Inc.** \$65,000 CAD. January 2011-December 2013

The Role of Slit/Robo Signaling in renal inflammation. Canada Research Chair (Tier II). Robinson LA. **Canada Research Chairs Program**. \$500,000 CAD. July 2010-June 2015

Staff

Division Head

Dr. Lisa Robinson

Full-Time

Dr. Christoph Licht

Dr. Diane Hébert

Dr. Elizabeth Harvey

Dr. Norman Rosenblum

Dr. Rulan Parekh

Dr. Tino Piscione

Dr. Valerie Langlois

Part-Time

Dr. Denis Geary

Dr. Lindsay Teskey

Dr. Mina Matsuda-Abedini

Dr. Rachel Pearl

Dr. Seetha Radhakrishnan

Clinical Fellows

Dr. Mamdoh Alsehli

Dr. Shireen Bakhsh

Dr. Thanaporn Chaiyapak

Dr. Rahul Chanchlani

Dr. Joana Dos Santos

Dr. Ismail Dursun

Dr. Wesley Hayes

Dr. Damien Noone

Dr. Sharon Rousso

Dr. Sibylle Tschumi

Adjunct

Dr. Leo Levin

Honorary

Dr. Gerald Arbus

Administrative Staff

Anna Corpuz

Dana Debernyj

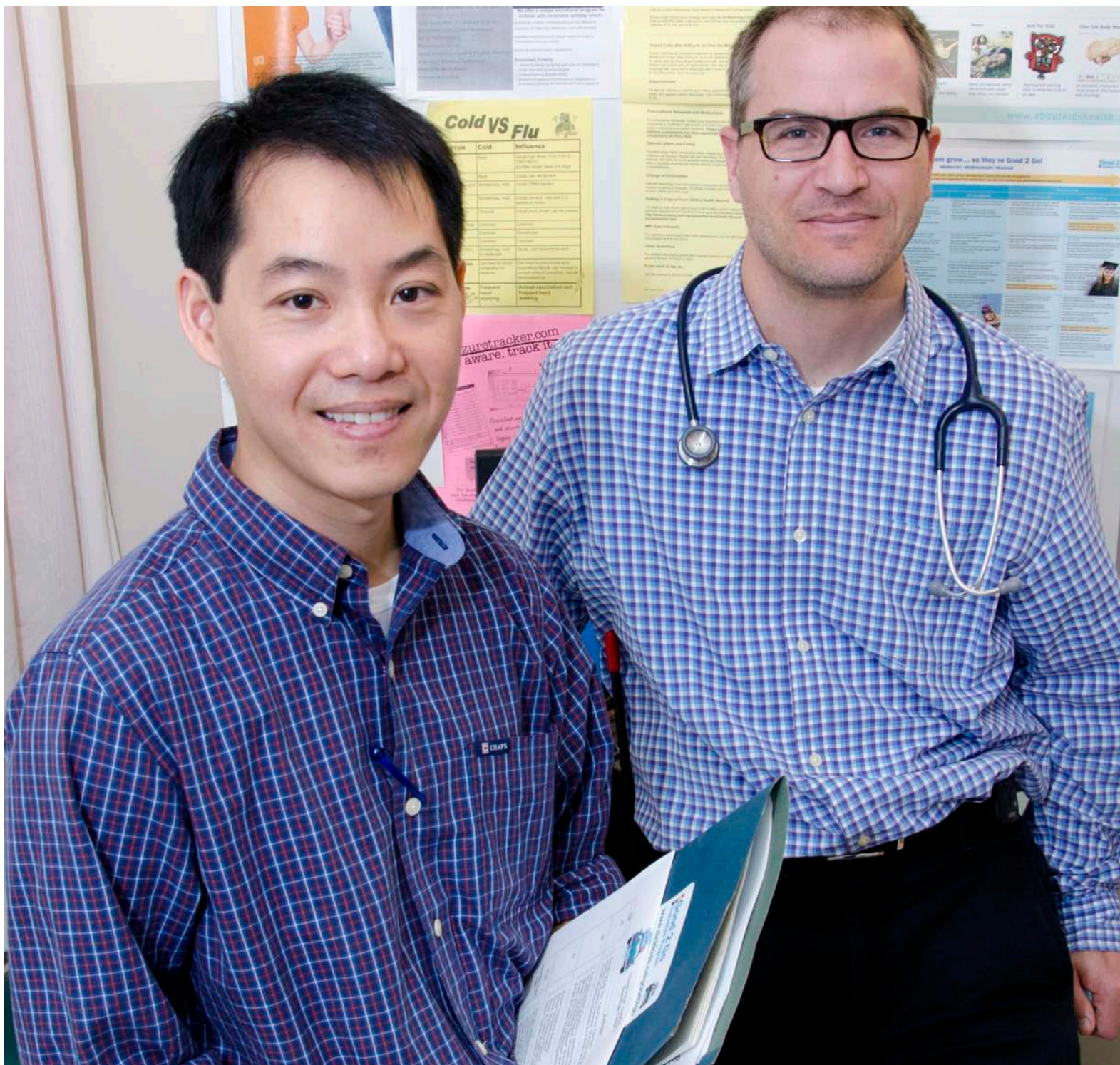
Ramnarine Mohabir

Bernard Singh

Victoria Snell

Andrea Verdugo

Burnett Wint



neurology

Vann Chau and Jim Dowling

Divisional Overview

The major foci of the clinical and academic activities of the Division of Neurology are epilepsy, stroke, headache, neurometabolic disease, neuromuscular disease, neurogenetics, sleep disorders, movement disorders, neuroinflammatory diseases, functional neuroimaging, neonatal neurology and neurointensive care. Our neonatal neurology program has been enhanced with the arrival of Dr. Vann Chau this past July, 2013. The Division's strength in neuromuscular disease and research has been enhanced with the arrival of Dr. James Dowling in September 2013, a clinician scientist from the University of Michigan. In the coming year we will have two additional staff: Dr. Blathnaid McCoy, currently a superfellow in our Epilepsy program will join our full time faculty in the epilepsy program and Dr. Noma Dlamini, a former stroke fellow will join our stroke program.

Several faculty need honourable mention for their endeavours over the past year including Dr. Carter Snead, Dr. Cristina Go, Elizabeth Ferguson, Rohit Sharma and all those from SickKids who were involved in developing the recently published Provincial Epilepsy Monitoring Unit (EMU) guidelines for Ontario. These guidelines now represent the standard for EMUs across the province. In addition, Dr. Cecil Hahn is to be commended for his work expanding our cEEG (continuous electroencephalography) program in Neurophysiology, collaboratively with our intensive care units.

The Division of Neurology has a Royal College accredited training program in Child Neurology as well as postdoctoral training programs in epilepsy, stroke, neurometabolic disease and demyelinating diseases. In addition, there are a number of graduate students and postdoctoral fellows in clinical neurophysiology, neurogenetics, molecular and cellular neurobiology.

The highlight of our academic year is the division's annual Prichard Day. In memory of Dr. John Stobo Prichard, former division head, the day highlights our trainees' research endeavours. Dr. Prichard was very involved in education and in his honour, our trainees present their research work on this day, ending with a keynote lecture by a world-renowned expert. This year we were honoured to host Dr. Houda Zoghbi, Professor, Department of Pediatrics from the Baylor College of Medicine. We thank the Prichard Family for their continued support of our trainees and this very special day.

The clinical and basic research foci of the Division of Neurology is epilepsy (both clinical and basic research), magnetoencephalography, stroke, cognitive neuroscience, burden of disease and quality of life, muscular dystrophy, multiple sclerosis, fatty acid oxidation disorders, molecular and cellular neurobiology, and neonatal neurology.

Honors and Awards

Cortez, M: Senior Member, Development of standards for recordings and interpretation of immature rodent EEG, Working Group 2, Translational Task Force of the Neurobiology Commission of the ILAE/AES, Stockholm, Sweden, June 2014

deVeber, G: Winner, Child Neurology Society's 2014 Bernard Sachs Award, Saint Paul, Minnesota, November 2013

MacGregor, D: Winner of the Athabasca University Centre for Innovative Management "Excellence in Research Scholarship Award" Athabasca, Alberta, January 2014

Miller, S: Appointed President, Society for Pediatric Research, 2013-2015

Miller, S: Winner of the John Stobo Prichard Award, The International Child Neurology Association, Department of Paediatrics, University of Toronto, Toronto, Ontario, May 2014

Minassian, B: Winner of the Norman Saunders “Jacob’s Ladder International Research Prize” for Outstanding Scientist, Department of Paediatrics, University of Toronto, Toronto, Ontario, May 2014

Moharir, M: Runner-up CanMeds Faculty Teaching Award, Division of Neurology, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Ochi, A: Winner of the Neurology Staff Clinical Teaching Award in Division of Neurology, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Pang, E: Winner of the Surgeon General’s Medal of Service, presented by Brigadier-General J.R. Bernier, October 15, 2013

Taylor, M: Winner of the Surgeon General’s Medal of Service, presented by Brigadier-General J.R. Bernier, October 15, 2013

Tein, I: President-Elect, The International Child Neurology Association. May 2012-May 2014

Tein, I: Appointed President, The International Child Neurology Association, May 2014-May 2018

Tein, I: Appointed Chair, Research Task Force, The International Child Neurology Association. November 2011-June 2014

Tein, I: Member, Executive Board, the International Child Neurology Association. May 2010 to May 2014 and May 2014- May 2018

Tein, I: Member, Editorial Board, Journal of the International Child Neurology Association, May 2012 to present

Tein I: Member, Education Committee, The International Child Neurology Association. May 2014 to May 2018

Tein I: Co-Chair, NINDS International Mitochondrial Disease Common Data Element Working Group for Development of common data elements for mitochondrial trials/studies. January 2014 -present

Tein, I: Supervisor of Neurology resident Lance Rodan MD’s research project which won first Prize for best oral presentation of Research in Metabolic Session of the XIIIth International Child Neurology Congress, Iguacús, Brazil, May 2014

Tein, I: Chair, Neurometabolic Disorders Treatment Update (plenary session) XIIIth International Child Neurology Congress, Iguacús, Brazil May 2014

Weiss, S: CanMeds Faculty Award, Division of Neurology, The Hospital for Sick Children, Toronto, ON, SickKids Department of Pediatrics Continuing Education Award. June 2014. Department of Pediatrics, University of Toronto, Toronto, Ontario, June 2014

Widjaja, E: Excellence in Teaching. Department of Medical Imaging Fellowship Program. University of Toronto, Toronto, Ontario, July 2013 – June 2014

Publications

Abend NS, Arndt DH, Carpenter JL, Chapman KE, Cornett KM, Gallentine WB, Giza CC, Goldstein JL, Hahn CD, Lerner JT, Loddenkemper T, Matsumoto JH, McBain K, Nash KB, Payne E, Sánchez SM, Sánchez Fernández I, Shults J, Williams K, Yang A, Dlugos DJ. Electrographic seizures in pediatric ICU patients: A cohort study of risk factors and mortality. *Neurology* 2013; 81: pp 383-391.

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Grants and Funding

A multi-site double-blind placebo-controlled trial of memantine vs. placebo in children with autism targeting motor skills. Anagnostou E, Soorta L. **Autism Speaks (USA)**. \$200,000 USD. September 2011-August 2013

A pilot dose finding study of pioglitazone in children with ASD. Anagnostou E, Brian J. **Physicians Services Incorporated Foundation**. \$127,700 CAD. 2012-2014

A study to assess the safety, tolerability and pharmacokinetics of multiple doses of ISIS 396443 delivered intrathecally to patients with infantile onset spinal muscular atrophy (SMA). Vajsar J. Canadian PI (only site). **ISIS Pharmaceuticals**, (Per patient includes study initiation of \$20,000 USD). Total amt p/pt \$49,826 USD (inclusive of OH) & approximately 4 pts. July 2013-July 2015

Abnormal brain development in newborns with congenital heart disease. Miller S, Synnes A, Grunau R, Poskitt K, Campbell A. **Canadian Institutes of Health Research**. \$798,370 CAD. 2009 – 2014

Abnormal Brain Development in Newborns with Congenital Heart Disease. Miller SM, Hahn CD, Hickey E, Macgowan C, Seed M. **Canadian Institutes of Health Research**. \$798,370 CAD. April 2009 – March 2014

An international multi-centre joint initiative to plan and design a randomized controlled trial (RCT) of anti-coagulation therapy in neonatal cerebral sinovenous thrombosis (NCSVT). Moharir M, deVeber G, de Vries L, Branson H, Chan A, de Haan T, Jordan L, Kirkham F, McNamara P, Pontigon AM, Steinlin M, Shroff M, van Ommen H, Volmer B. **International Pediatric Research Foundation**. \$25,000 USD. August 2012 – July 2013

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Application of non-invasive magnetoencephalography (MEG) for objective assessment of post traumatic stress disorder (PTSD): A pilot study. Taylor MJ, Pang EW. **Department of National Defense (Canada)**. \$248,341 CAD. September 2012 1- March 2014

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Better nights/better days: Improving psychosocial health outcomes in children with behavioural insomnia. Corkum PV, Andreou P, Gruber R, Rusak B, Weiss SickKids, Barwick M, Hall W, Stremmer R, Witmans M, Chambers C, McGrath P, Wade T, Godbout R, Reid G, Watters C. **Canadian Institutes of Health Research.** \$2,000,000 CAD. September 2010-October 2015

Biomarkers in Sudden Unexpected Death in Epilepsy (renewal). **Ontario Brain Institute.** \$250,000 CAD. June 2013 – July 2018

Carrier mediated delivery of therapeutic proteins into the brain. Minassian BA, Melnyk R. The W. **Garfield Weston Foundation – Brain Canada Multi-Investigator Research Initiative (MIRI)** \$1,500,000 CAD. 2013-2016

CCDC78 and the pathogenesis of centronuclear myopathy. Dowling JJ. **National Institutes of Arthritis and Musculoskeletal Diseases (NIAMS), NIH, 1R03AR062810.** \$150,000 USD. 2012-2015

Cellular aging and HIV comorbidities in women and children. Smith ML, Cote H. **Canadian Institutes of Health Research.** \$2,500,000 CAD. 2013-2017

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Cerebral palsy: Causes to prevention imaging substudy. Miller S, Fehlings D, Andersen J, Yager JY, Majnemer A, Dube MP, Scherer S, Joseph KS, Goetz H, Kolb B, van der Kooy D, Nagy A, Spratt K, Stainsz G, Velumian A, Wintermark P. **NeuroDevNet – Networks of Centres of Excellence.** \$100,000 CAD. May 2010-April 2015

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Characterization of postictal generalized EEG suppression in children. Otsubo H, Okanari K. **Ontario Brain Institute, EPLink.** \$50,000 CAD. April 2014-March 2015

Charting the territory: Determining and documenting trajectories for families where a child has a life-threatening condition. Siden H, Steele R, Cadell S, Davies B, Straatman L, Brant R, Rapoport A, Weiss SickKids. **Canadian Institutes of Health Research.** \$1,343,000, SickKids portion: \$102,970 CAD. 2013-2015

Childhood cerebral palsy integrated discovery network “CP-NET”. Fehlings D, deVeber G, Fehlings M, Menon R, Rosenbaum P, Scherer S. **Ontario Brain Institute.** \$5,000,000 CAD. June 2013-May 2018

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Cholesterol and omega-3 fatty acid levels on brain development and neurodevelopmental outcome after prematurity. Tam EWY, Ferriero DM, Grunau RE, Innis SM. **The Gerber Foundation.** \$131,009 CAD. July 2012-June 2015

Clinical genetic testing for autosomal recessive hereditary spastic paraplegia. Ray PN, Yoon G, Baskin B. **NIH Office of Rare Diseases Research Collaboration Education and Test Translation Program.** \$197,000 USD. 2010 – 2015

Co-clinical trials in Mice and Humans in Autism. Anagnostou E, Lerch J. **Azrieli Foundation-Brain Canada.** \$2,500,000 CAD. April 2014-March 2019

Collaborative assessment of pediatric transverse myelitis: Understand, Reveal, Educate (CAPTURE) Study. Greenberg B, Yeh EA, Banwell B, Krishnan C, Pardo C, Becker D, Boyce D, Waldman A. **PCORI: Assessment of Prevention, Diagnosis, and Treatment Options.** \$1,500,000 USD. 2013-2016.

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Community response to wind turbine noise in rural settings. Michaud D, Feder K, (Weiss S consultant). **Health Canada.** \$2,000,000 CAD. September 2012-September 2015

Comparing the language network with scalp and subdural EEG in patients with epilepsy. Pang EW, Valiante TA. **Ontario Brain Institute, EPLink.** \$250,000 CAD. Mar 2013-Feb 2018

Creatine supplementation in childhood myositis. Feldman B, Tein I, Schulze A, Wells G, Stephens S. **The Myositis Association.** \$100,000 CAD. March 2013-February 2015

Creating a novel mentorship program for junior faculty at a pediatric academic health sciences center- The role of a modified developmental evaluation (MDE) model. Weiss SickKids, Parker K, Martimianakis, T, Schneider R, Leslie K. **SickKids Pediatric Consultants Education Research Grant.** \$4,800 CAD. 2010-2014

Critical Care EEG Monitoring Consortium – Research Infrastructure Award. Hahn CD, Abend NS, Hirsch L, Husain AM, LaRoche SM, Lee JW. **American Epilepsy Society and Epilepsy Foundation.** \$50,000. 2014.

Curing adult polyglucosan body disease in mouse. Minassian BA. **The Adult Polyglucosan Body Disease Research Foundation.** \$113,000 USD. July 2012 – June 2014

Developing instructional approaches suited to the cognitive and motivational needs of struggling adult readers. Greenberg D, Lovett MW, Graesser A, Frijters JC, Branum-Martin L. Center for the Study of Adult Literacy: (R305C12001) **Funded as the first National Research and Development Center on Cognition and Adult Literacy, Institute of Education Sciences (US Department of Education).** \$10,000,000 USD. 2012-2017

Development, implementation and dissemination of a standardized approach to the care of paediatric multiple sclerosis: a national consensus guideline of management strategies including treatment of acute relapses, immunomodulation, and escalation therapy to increase patient safety and prevent early-onset neurological disability. Pohl D, Venkateswaran S, Banwell B, Yeh EA. **CIHR.** \$300,000 CAD. April 2012 – March 2015

Development of enhanced pediatric neuroscience clinical care through international partnerships: Providing and evaluating best practices for both on-site (short-term) and distance (long-term) continuing medical education. Weiss SickKids, Parakh M, Shroff M, Moharir M, BenDavid G, Martimianakis T. **SickKids International.** \$20,000 CAD. December 2011-November 2013

Development of a MEG-compatible articulography system for the assessment of brain function and oromotor dynamics. Cheyne D, Chau T, Pang EW, Steele CM, van Lieshout P, Donner EJ. **Natural Sciences and Engineering Research Council of Canada & Canadian Institutes of Health Research.** \$390,000 CAD. September 1 2010 – August 2013

Development of frontal lobe cognitive functions: Timing, structure and connectivity. Taylor MJ, Doesburg S, Agnagnostou E, Pang EW. **Canadian Institutes of Health Research**. \$875,000 CAD. April 1-2012-March 31-2017

Developmental investigation of memory capacity using functional neuroimaging. Taylor, MJ. **Natural Sciences and Engineering Research Council of Canada Discovery Grant**. \$150,000 CAD. 2009-2014

Development of an MEG-compatible articulography system for the assessment of brain function and oromotor dynamics. Cheyne D, Chau T, Pang EW, Steele CM, van Lieshout P. **Natural Sciences and Engineering Research Council of Canada & Canadian Institute of Health Research**. \$390,000 CAD. 2010 – 2013

Development of frontal lobe cognitive functions: timing, structure and connectivity. Taylor MJ, Doesburg S, Agagnostou E, Pang EW. **Canadian Institutes of Health Research BSC**. \$875,000 CAD. 2012-2017

Dissociating cognitive and motor components of healthy and dysfunctional expressive language development in children. Pang EW, Cheyne D, De Nil L, Roberts SW. **Canadian Institutes of Health Research**. \$871,125 CAD. October 2008-September 2013

Do recurrent seizures injure the developing brain? Elysa Widjaja. **EpLink/Ontario Brain Institute**. \$250,000 CAD. March 2014-February 2019

DTI, MRSI, and volumetry of cerebellar injury in preterm neonates. Tam EWY, Ferriero DM, Xu D, Berman JI, Vigneron DB, Barkovich AJ, Miller SP. **National Institute of Health**. \$1,990,000 CAD. December 2009-November 2014

Early childhood behavior: Relations to early brain structure/function and maternal mood. Oberlander T, Brant RF, Chau V, Grunau RE, Lim KI, Miller SP, Misri S, Rurak DW, Wiebe SA. **Canadian Institutes of Health Research**. \$1,139,616 CAD. September 2012 – August 2017

Early detection and neurodevelopment outcome in late onset IUGR. Seed M, Kingdom J, Miller S, Blaser S, Jaeggi E, Macgowan C, Manlhiot C, McCrindle B, Keating S. **SickKids Foundation/CIHR New Investigator**. \$298,390 CAD. October 2013-September 2016

Early childhood behavior: Relations to early brain structure/function and maternal mood. Oberlander T, Brant RF, Chau V, Grunau RE, Lim KI, Miller SP, Misri S, Rurak DW, Wiebe SA. **Canadian Institutes of Health Research**. \$1,139,616 CAD. April 2012-March 2017

Emerging team to identify and characterize novel and existing Hereditary Spastic Paraplegia (HSP) disease genes. Rouleau GA, Bolduc FV, Boycott KM, Drapeau P, Dupré N, Parboosingh J, Parker A, Ray PN, Suchowersky O, Vande Velde C, Yoon G. **Canadian Institutes of Health Research** \$499,744 CAD. 2012-2017

End MS RRTC, Ontario-Manitoba. Yeh EA, Harauz, G, Gaffhir, O. **MS Society of Canada**. \$300,000 CAD. 2012-2015

Ensuring effective newborn screening: The case of cystic fibrosis. Miller S, Guttuman, Bombard, Carroll, Chakrabaty, Durie P, Kerr E, Ratjen, Taylor M, Tam E. **Canadian Institutes of Health Research**. \$636,506 CAD. September 2010-August 2014

Epilepsy Transitional Program: Results of a 6-year experience and needs assessment. Andrade DM. **University of Toronto, Faculty of Medicine. New Initiative Program**. \$30,000 CAD. July 2013-July 2014

EPITOME – Efficacy of prednisone in the treatment of ocular myasthenia gravis. Katzberg H, Benetar M. **US Food and Drug Administration**. \$40,000 US. 2013-2014

EpLink: Phase II of The Epilepsy Discovery Project Genetic Database. Minassian BA. **The Ontario Brain Institute**. \$500,000 CAD. 2014-2019

Ergometric training in mitochondrial myopathies. Tein I (PI). **Knights of Columbus Fund for Mitochondrial Disorders**. \$2,000 CAD. February 2013-January 2015

Environmental enrichment and infantile spasms: morphological studies. Snead OC. **Ontario Brain Institute**. \$90,000 CAD. January 1-2013 – Dec 31-2018

Ergometric training in mitochondrial myopathies. Tein I. **Knights of Columbus Fund for Mitochondrial Disorders**. \$1,000 CAD. February 2013-January 2014

Exploring stochasticity in the spatio-temporal patterns of coordinated brain activity. Perez-Velazquez JL. **Natural Sciences and Engineering Research Council of Canada Discovery Grant**. \$155,000 CAD. 2012-2017

First Ontario EEG screening for children with risk factors for infantile spasms: Significance of phase synchrony in hypsarrhythmia. Cortez MA, Nenadovic V, Bamaga A, Go C, Sharma R, Weiss, S, Donner E, Tam E, Miller S, Snead C. **Eplink/Ontario Brain Institute**. \$50,000 CAD. July 2013-July 2018

Gene discovery for malignant hyperthermia susceptibility. Dowling JJ. **McLaughlin Centre Accelerator Grant, University of Toronto**. \$75,000 CAD. May 2014-April 2015

Genes, reading and dyslexia. Gruen J, Lovett MW, Wolf M, Pennington B, Willcutt E, Boada R. **Manton Foundation to Yale University**. \$5,000,000 USD. 2009-2014

Genetics of temporal lobe epilepsy. Minassian B, Andrade D, Bassett A, Krings T, Chow E. **Ontario Brain Institute**. \$70,000 CAD. December 2011-July 2013

Genomics of pharmaco-resistant epilepsies. Genome Canada. Cossette P, Minassian B, Michaud J, Rouleau G, Scherer S. **2012 Large-Scale Applied Research Project Competition Genomics and Personalized Health**. \$10,000,000 CAD. 2012-2018

GLU-T1 deficiency and response to ketogenic diet. Matmutoglu S, Kobayashi J, Donner E. **Canadian Institutes of Health Research**. \$45,000 CAD. 2012-2014

Identification of carnitine-responsive cardiomyopathy and myopathy in adult patients with dilated and hypertrophic cardiomyopathy and limb girdle weakness. Faghfoury H, Tein I. **Physicians' Services Incorporated Foundation of Ontario**. \$115,616 CAD. October 2012-September 2014

Identifying the genes for the prototypical and most common generalized epilepsies of children through whole exome sequencing. Minassian B, Andrade D. **McLaughlin Centre**. \$50,000 CAD. 2012-2014

Identifying the genes and underlying causes for intractable epilepsies by next generation sequencing. Minassian BA, Mahmutoglu S. **McLaughlin Centre Accelerator Grants in Genomic Medicine**. \$75,000 CAD. 2013-2014

Identifying the genes for the prototypical and most common generalized epilepsies of children through whole exome sequencing. **McLaughlin Centre**. Minassian B. \$50,000 CAD. 2012 – 2014

Impact of pediatric epilepsy surgery on health-related quality of life. Snead OC. **Canadian Institutes of Health Research**. \$785,000 CAD. April 1-2014 – March 30-2019.

Infantile spasms in Down syndrome: Correction of the epileptic phenotype. Snead OC. **Canadian Institutes of Health Research**. \$181,202 CAD. April 2011-March 2016

Interdisciplinary HIV Pregnancy Research Group: Care and research to optimize HIV-positive women's health during preconception, pregnancy and motherhood. Loutfy MR, Serghides L, Yudin M, Hangel JB, Bayoumi A, Bitnun SA, Brophy JC, Calzavara L, Carvalhal A, Greene S, Gruslin AM, Hamilton GS, La Porte C, Lye SJ, Murphy KE, Newmeyer TS, Raboud, JM, Rachlis, AR, Ralph ED, Rosenthal KL, Shapiro HM, Shynlova O, Silverman M, Smail FM, Smith ML, Walmsley SL, Wobeser WL. **Canadian Institutes of Health Research Emerging Team Grant**. \$900,000 CAD. 2011-2014

Intranasal oxytocin for social cognition/function in adults with autism. Anagnostou E, Woodbury-Smith M, Szatmari P, Brian J. **Canadian Institutes of Health Research**. \$1,073,417 CAD. January 2012-January 2016

Intranasal oxytocin for the treatment of children and adolescence with autism spectrum disorders (ASD). Jacob S, Anagnostou E, Brian J. **Department of Defense (USA)**. \$801,790 USD. September 2010-August 2013

Investigation of prognostic factors in childhood-onset AIS: Role of stroke subtype. Bernard T, deVeber G. **National Institutes of Health (NIH)**. \$690,300 USD. July 2011- June 2015

Iron treatment of sleep disorders in children with autism spectrum disorder. Reynolds A, Malow B, Weiss SickKids, Green P, Halbower A, Connolly H, Hyman S. **Autism Speaks**. \$82,000 CAD. Nov 2013-Nov 2014 June (study cancelled, funding ongoing for preparation of manuscript)

Magnetoencephalography (MEG) measures of sensorimotor plasticity in hemiplegic CP during Constraint Induced Movement Therapy (CIMT): Combining MEG and MRI to improve localization of epileptic brain activity. Cheyne D, Fehings D. **Ontario Brain Institute**. \$100,000 CAD. 2013-2015

Measuring the stimulated brain: Determining the specificity of high definition electrical brain stimulation using simultaneous MEG. Cheyne D, Master S. **The Hospital for Sick Children, Centre for Brain and Mental Health, Small Grants Program**. \$43,440 CAD. 2013 – 2014

Michael Bahen Chair in Epilepsy (Research Endowment), University of Toronto. Minassian BA. **University of Toronto Advancement Office**. \$425,000 CAD. 2012 Apr-2016 Mar

Microbiome in inflammatory disorders. Gommeran J, Yeh EA. **Connaught Grant-University of Toronto**. \$100,000 CAD. 2012-2013

Microbiome in inflammatory disorders. Connaught Grant. Gommerman J, Yeh EA. **University of Toronto**. \$1,000,000 CAD. 2013

MRI assessment of the impact of fetal brain oxygenation on brain development in congenital heart disease. Miller S, Macgowan C, McCrindle B, Yoo SJ, Jaeggi E, Blaser S, Kingdom J. **Pediatric Heart Network (National Institutes of Health) Scholar Awards Funding For Mentored Research**. \$75,000. 2013- 2014

Muscle-eye-brain diseases. Vajsar J. **SickKids Foundation**. \$37,000 CAD. January 2006-Dec 2014

Music therapy to enhance sleep in sick infants in NICU. Ochi A, Tam EWY. **SickKids Brain & Behaviour Chase an Idea Grant**. \$50,000 CAD. July 2014-June 2015

Neural correlates of movement disorders resulting from childhood stroke. Cheyne D, deVeber G. **Canadian Institutes of Health Research**. \$309,000 CAD. April 2014-March 2017

Neurodevelopmental outcomes of pre- and peri-natal exposure to antiretroviral treatment in HIV-uninfected children. Smith ML, Read S, Bitnum A. **CANFAR**. \$160,000. 2012-2014

Neuroimaging of controlled and automatic processes in human motor control. Cheyne D. **Natural Sciences and Engineering Research Council of Canada Discovery Grant**. \$180,335 CAD. 2009-2014

Neurological Outcome of ypoglycemia in Neonatal Encephalopathy. Tam EY. Hahn CD, Chau V, Miller SP. **Canadian Institutes of Health Research**. \$703,747 CAD. April 2014-Mar 2019

Neurological Registry Best Practice Guidelines and Implementation Toolkit. Korngut L, Donner EJ. **Public Health Agency of Canada**. \$209,496 CAD. January 2011-December 2013

New approaches to intractable epilepsy-The Epilepsy Discovery Project: Combining MEG and MRI to improve localization of epileptic brain activity (Subproject of Group grant). Cheyne D, Lerch J, Otsubo H, Widjaja E, Wennberg R. **Ontario Brain Institute**. \$250,000 CAD. 2013 -2018

New approaches to intractable epilepsy-The Epilepsy Discovery Project [Improving Working Memory in Children with Active Epilepsy (Subproject of Group grant). Kerr EN. **Ontario Brain Institute**. \$50,000 CAD. March 2013-March 2018

New approaches to intractable epilepsy: Phase II of The Epilepsy Discovery Project. Minassian BA. **The Ontario Brain Institute**. \$250,000 CAD. 2014-2019

New approaches to intractable epilepsy – The Epilepsy Discovery Project. Burnham M, Burneo J, Andrade D, Carlen P, Hwang P, McAndrews MP, Persad N, Poulter M, Ronen G, Shapiro M, Snead C, Steven D Valiante T, Whiting S. **Ontario Brain Institute**. \$2,896,481 CAD. December 2011-December 2013

Nicotinic acetylcholine receptor PET imaging in patients with myasthenia gravis. Katzberg H, Metzger U, Brill V. **Myasthenia Gravis Foundation of America**. \$50,000 USD. January 2013 -January 2014

Nodular heterotopias as a biomarker for pharmacoresistant schizophrenia. Bassett A, Krings T, Andrade D. **NARSAD Young Investigator (USA)**. \$59,648 USD. 2011-2013

Nonconvulsive seizures among critically ill children: Focus on neuropsychological outcomes. Hahn CD, Hutchison JS, Snead OC, Parshuram CS, Otsubo H, Dennis M. **The Physicians' Services Incorporated Foundation**. \$167,000 CAD. March 1-2010-December 31-2013

Nonconvulsive seizures among critically ill children. Hahn CD, Hutchison JS, Snead OC, Parshuram CS. Collaborator: Otsubo H. **Canadian Institutes of Health Research & SickKids Foundation-New Investigator Research Grant**. \$431,694 CAD. 2009-2014

Non-invasive magnetoencephalography in Aneurysmal Subarachnoid Hemorrhage: A Pilot Study. DaCosta L, Bethune A, Taylor MJ, Pang EW. **Brain Aneurysm Foundation**. \$24,000 CAD. 2013-2014

Non-invasive treatment of paediatric neurological disorders. M Drake, Hoadie M, Tam E, DeVeber G, Donner E, Waspe A, Pichardo S, Looi T. **Brain Canada Multi-Investigator Research Initiative**. \$1,500,000 CAD. July 2013-June 2016

Objective and subjective assessment of sleep in adolescents after mild traumatic brain injury compared to non-injured controls: a pilot study. Hung R, Keightley M, Reed N, Weiss SickKids, Rumney P, Thomas S, Taha T. **Bloorview Research Institute Catalyst Grant**. \$11,466 CAD. 2013-2014

Optimizing mothers' milk for preterm infants. O'Connor DL, Unger S, Doesburg SM, Fusch C, Hamilton JK, Innis SM, Kiss AJ, Miller SP, Pencharz PB, Rovet JF, Shah P, Stintzi A, Tam EWY, Taylor MJ, Tomlinson C, Zlotnik SR. **Canadian Institutes of Health Research**. \$1,999,675 CAD. June 2013-May 2018

Optimizing Mothers' Milk for Preterm Infants. O'Connor DL, Unger S, Doesburg SM, Hamilton JK, Miller SP, Pencharz PB, Rovet JF, Shah P, Stintzi A, Taylor MJ, Tomlinson C. **CIHR**. \$10,000 CAD. 2012 September 1-2012 – August 31-2013

Personalized medicine for the treatment of epilepsy. Cossette P, Minassian BA. **Genome Canada**. \$10,000,000 CAD. July 2013 – June 2017

Physical activity in pediatric MS: barriers and facilitators. Yeh EA. **National MS Society**. \$40,000 USD. 2014-2015

Post-marketing retrospective and observational study: Utilization and effectiveness analysis of Gamunex in Guillain-Barré Syndrome (GBS). Vajsar J. **Grifols Inc**. \$11,000 CAD. March 2014 – March 2015

Preterm infants. O'Connor DL, Unger S, Doesburg SM, Hamilton JK, Miller SP, Pencharz PB, Rovet JF, Shah P, Stintzi A, Taylor MJ, Tomlinson C. **Canadian Institutes of Health Research**. \$10,000 CAD. 2012 – 2013

Quantitative neuroimaging markers of executive dysfunction in children with frontal lobe epilepsy. Widjaja E. **GERRAF**. \$140,000 CAD. September 2011 – August 2013

Stress and neurodevelopment in children born preterm. Grunau R, Miller S, Synnes A, Brant R, Weinberg J, Whitfield M. **Canadian Institutes of Health Research**. \$155,339 CAD. 2008 – 2013

Stress and neurodevelopment in children born preterm. Grunau R, Miller S, Synnes A, Brant R, Weinberg J, Whitfield M. **Canadian Institutes of Health Research**. \$155,339 CAD. 2008 – 2013

The Children's Stroke Project. deVeber G. **Auxillium Foundation**. \$1,800,000 CAD. July 2009 – July 2014

Stroke Imaging Laboratory for Children (SILC). deVeber G. **Heart and Stroke Foundation and SickKids Foundation**. \$2.2 million CAD. September 2013-April 2019

Therapeutic hypothermia after pediatric cardiac arrest (THAPCA). Moler F, Hutchison JS, Guerguerian A-M, Hahn CD. **National Institutes of Health (NCT00880087, NCT00878644)**. \$21,000,000 CAD. 2010-2016

Think fast! The role of automaticity in the cognitive control of action. Cheyne D. **NSERC Operating Grant** \$145,000 CAD. 2014 – 2020

Thrombolysis in pediatric stroke (TIPS). Amlie-Lefond C, deVeber G. **National Institutes of Health**. \$3,965,250 USD. September 2011-August 2016

Towards the correction of the Rett-like phenotype of MeCP2-deficient mice. Snead OC. **Canadian Institutes of Health Research**. \$150,000 CAD. October 1-2010-September 30 2014

Trajectories of brain development and neurocognitive outcomes in children born premature. Miller S, Grunau R, Bjornson B, Brant R, Poskitt K, Synnes A, Weinberg J. **Canadian Institutes of Health Research**. \$1,171,869 CAD. April 2011 – March 2016

Transitional Epilepsy Program: improving adult health care in patients with pediatric-onset epilepsy. Snead C, Miller S, Andrade DM, FBorlot F. **Ontario Brain Institute**. \$30,000 CAD. July 2013-June 2014

Treating insomnia in children with cerebral palsy: A pilot prospective case series study to determine the impact of a standardized parent sleep education program and feasibility of sleep actigraphy in this population. Green P, Petta C, Milo-Manson G, Weiss S, Constantin E, Gresley-Jones T. **Bloorview Research Institute Catalyst Grant**. \$12,000 CAD. April 2014 – March 2015

Treatment adherence in pediatric multiple sclerosis. Yeh EA, Schwartz C, Weinstock-Guttman B, Ness J, Patterson M, Rodriguez M, Waubant E. **National MS Society**. \$525,000 CAD. October 2012-October 2015

Treatment of overweight induced by antipsychotic medication in young people with ASD. Anagnostou E, Venstra-VanderWeele J, Handen B, Butter E, Aman M. **Health Resources and Services Administration (HRSA) (USA)**. \$1,418,395 USD. April 2012-August 2015

Typical and atypical development of frontal lobe systems and the maturation of social cognitive function. Taylor MJ, Pang EW, Doesburg S, Anagnostou E. **Canadian Institutes of Health Research**. \$766,896 CAD. 2012-2016

Validating the role of actigraphy in assessing sleep patterns and sleep disorders in children with epilepsy. Weiss SickKids, Sadaka Y. **SickKids Research Institute, Centre for Brain & Behaviour: Chase an Idea in Pediatric Neuroscience**. \$29,000 CAD. September 2011- September 2013

Validation of monitoring changes in brain synchrony to anticipate seizures and implement feedback stimulation to stop seizure occurrence. Perez-Velazquez JL. **Ontario Brain Institute**. \$155,700 CAD. 2011-2013

Validation of monitoring changes in brain synchrony to anticipate seizures and implement feedback stimulation to stop seizure occurrence. Perez-Velazquez JL. **Ontario Brain Institute**. \$250,000 CAD. 2013-2018

Vascular effects of infection in pediatric stroke. deVeber G, Fullerton H. **National Institutes of Health**. \$7,957,828 USD. July 2009-April 2014

Vitamin D Clinical Trial. Yeh, EA, Banwell B, Makhani N, Veith R, Marrie, RA. **Dairy Farmers of Canada**. \$80,000 CAD. January 2012-April 2015

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Dr. Katarina Haka-Ikse

Dr. E. Gordon Murphy

Dr. Diann Superina-Bell

Working memory in children with autism. Taylor MJ, Smith ML, Lerch JP, Anagnostou E. **Canadian Institutes of Health Research**. \$660,318 CAD. 2010-2015

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paediatric medicine

Eyal Cohen, Jason Buera, Erin Brandon, Kim Hogan, Katherine Gibson

Divisional Overview

The Division of Paediatric Medicine continues to play an integral role in the Department of Paediatrics, with respect to clinical care, quality improvement, education and research. This year has seen a transition in leadership, with Jeremy Friedman moving into the role of Associate Chair Clinical for the Department of Paediatrics and Michelle Shouldice into the role of Division Head for Paediatric Medicine. The Division's diverse and active Sections include: General Paediatric Hospital Medicine (inpatient and ambulatory), Complex Care, Paediatric Advanced Care Team (palliative care), Child Maltreatment Paediatrics (SCAN), Paediatric Dermatology and Community Paediatrics. Representatives from each of these sections play active roles within the hospital, and also maintain key leadership roles in national and international professional organizations.

Dr. Carolyn Beck continues to provide exceptional leadership for the inpatient hospital medicine section. A staged approach of consolidation of inpatient physician staffing has begun, transitioning to a dedicated group of hospitalists who are either full time Division members, or attend here at least half-time (with the remainder of their clinical work as hospitalists in one of our regional paediatric partner hospitals). The inpatient general pediatric units have experienced sustained high patient volumes and an increase in acuity and complexity, requiring increased attention to optimizing systems and processes, while maintaining a focus on quality and safety. Carolyn Beck, Charlotte Moore Hepburn and Trey Coffey have been at the helm of new initiatives in this area, in partnership with Dinarte Viveiros and Kate Langrish. The Division continues to lead Departmental quality initiatives and to meet or exceed targets, including ED length of stay for admitted patients, discharge medication reconciliation, discharge times and transfer times. The Streamlined Care Unit (SCU) continues to offer efficiencies through cohorting of patients with predictable clinical trajectories. A new model of care, called the Alternative Care Environment (ACE) was conceptualized this year. The objective of ACE is to optimize

utilization of bed space for patients requiring inpatient admission, who do not require overnight nursing care. The Division's work on I-PASS, led by Trey Coffey and Zia Bismilla, and part of a national research collaborative, has continued to support enhanced patient care through attention to handoff/transfers of clinical care not only within the Division, but also more widely throughout the Department. Clinical practice guidelines have been developed for asthma and bronchiolitis, and an interdivisional collaboration is underway with Haematology with a view to optimizing care for patients with sickle cell disease requiring hospital admission.

In other areas of the Division, Dr. Catherine Birken was recognized this year with a Departmental award for outstanding clinical contribution, for her innovative work in the STOMP early years program, addressing the growing problem of obesity in young children. Dr. Eyal Cohen was recognized for his outstanding contributions to the care of children with complex medical conditions with a Junior Faculty Clinical Excellence Award. The complex care program continues to grow, now following more than 300 patients with components of the model, such as care plans, taken up by other Departmental programs. Julia Orkin, a new addition to the Division faculty, joined Eyal Cohen in the complex care program this year. The complex care satellite at North York General Hospital, headed by Ronik Kanani, is already at capacity and a new satellite was launched at Toronto East General Hospital. The Paediatric Advanced Care Team, led by Adam Rapoport, has experienced tremendous growth, with a notable increase in clinical activity, a sought-after elective experience, provincial committee development and an emerging fellowship training program. Academic productivity in PACT has dramatically increased. A plan is in place to continue to expand outpatient palliative care through community partnerships and outreach support. Dr. Lee Ford-Jones was honoured by the Canadian Paediatric Society in recognition of her outstanding advocacy for the health and welfare of children, with the prestigious Victor Marchessault Advocacy Award.

Education remains a key area of activity in Paediatric Medicine, with a significant proportion of core training for University of Toronto undergraduate students and pediatric residents provided by Divisional faculty, including the active Community Section. Under the newly-appointed Michael Weinstein, Divisional Director of Education as of February 2014, active efforts are underway to optimize continuity of care and bedside teaching for medical students and residents on the inpatient units, adjusting to changes in trainee work hours, family-centered rounds and efficiency mandates. Division members continue to be recognized for their outstanding contributions to education through teaching awards, including awards for postgraduate teaching granted to Drs. Parkin, Birken, Mozes and Talarico, and awards for undergraduate (Dr. Bernhardt) and continuing (Dr. Miriam Weinstein) education. Innovative curriculum development is actively underway in Paediatric Dermatology, PACT and Child Maltreatment. Physicians in Paediatric Medicine continue to play key leadership roles in undergraduate and postgraduate education within the Department, University and Learning Institute, and participate actively in Royal College committees and examination boards. A Divisional focus on education scholarship was consolidated this year, with the appointment of Zia Bismilla as the lead, and is expected to contribute to the growth and development of what is an emerging area of strength for the Division.

The Division continues to offer a large, diverse and active fellowship program, with a total of 23 fellows in the 2013/14 academic year, hailing from Canada, the US, Europe, the Middle East, and Mexico. Sarah Schwartz has been appointed Fellowship Director for the Division, and track directors are in place for each of the specific fellowship programs within the Division. Clinical fellows in general paediatric hospital medicine play an active role on the 7B inpatient unit, and admitting services, and provide high quality trainee on call coverage for general pediatrics. The academic general paediatric fellowship continues to thrive, with fellows developing skills in clinical epidemiology, health services research, medical education and public health. A new stream of the AGP fellowship was added this year in global health.

Active fellowship programs which are unique in Canada continue in Paediatric Dermatology, Child Maltreatment Paediatrics and Community Paediatrics, with a new fellowship beginning in Paediatric Palliative Care in 2014.

The Paediatric Medicine Research Program has continued its exponential growth and success. With areas of focus in patient-based outcomes research, health services research, global health research and a well-established innovative primary care research network (TARGet Kids), Division members have been exceptionally productive this year. Sustained success in grant support for research endeavours is evident, with Divisional faculty holding a total of more than 40 million dollars of grant funding, and numerous peer-reviewed publications. Dr. Astrid Guttmann continues to play a leadership role in child health services research and health policy, with a tremendously productive research program and has been appointed to the position of Chief Science Officer at the Institute for Clinical Evaluative Sciences (ICES). She was selected for the Divisional research award this year in recognition of her significant contributions. In recognition of his successful program of research, Jonathon Maguire was selected for Young Investigator Awards by the Canadian Paediatric Society and CIHR.

Paediatric Dermatology remains the busiest ambulatory clinical service in the Department. The Dermatology Section continues to provide outstanding clinical care for children with rare dermatologic conditions and those requiring interdisciplinary approaches. Headed by Elena Pope, the section provides leadership nationally and internationally in the field, is tremendously active in education at all levels, and offers a unique and popular fellowship training program which is building clinical and academic capacity. This year, Dr. Pope cochaired the World Congress of Paediatric Dermatology in Madrid, Spain. Academic activity within the Section has led to success in grant funding and numerous publications which are improving the course of clinical care for children with rare skin conditions.

The SCAN Program continues to grow under new leadership, with the transition of Michelle Shouldice into the Division Head role. Tanya Smith, a nurse practitioner with 20 years experience in the field heads up the sexual abuse/assault program. Emma Cory, a paediatrician who has been with SCAN for 10 years, and is recognized widely clinically and by the courts for her expertise in child physical abuse, neglect and failure to thrive, was appointed SCAN co-Director in February, 2014. Clinical activity continues both on site at the hospital, and at the downtown Child and Youth Advocacy Centre, a model partnership between medical, mental health, child protection and police services. An active fellowship program is in place, training paediatricians who will build capacity in Canada and internationally. Certification in Child Maltreatment Paediatrics by the Royal College is pending and the Toronto fellowship program will apply for accreditation this upcoming year. A successful annual National Symposium on Advanced Practices in Child Maltreatment Paediatrics was held in Toronto in 2013, attended by more than sixty paediatricians and nurses who provide care and expert opinions in child maltreatment cases. An interprofessional clinical research program in child maltreatment continues to develop, with increasing poster presentations and publications arising from the team.

This outstanding group of clinicians, educators and researchers has had a tremendously successful year and remains dedicated to working together to improve the health and welfare of children through general pediatric clinical care, a commitment to education, and scholarship. Important collaborations with the Division's downtown partner St. Michael's hospital, Toronto area regional hospitals, community pediatricians, primary health care providers, and research networks are essential to the Division and continue to grow. Congratulations on an excellent year!

Honors and Awards

Bernhard, N: Winner of the RHA Haslam Preclerkship Teaching Award, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Birken, C: Winner of the POWER Award for excellence in post-graduate teaching, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Birken, C: Winner of the award for Outstanding Clinical Contribution (with Jill Hamilton/STOMP), Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Cohen, E: Winner of the Junior Faculty Award for Clinical Excellence in Paediatric Medical Care, Department of Paediatrics, The Hospital for Sick Children, Toronto, Ontario, June 2014

Cohen, E: Winner of the Inaugural Visiting Innovator, Center for Child Health Policy, Stanford University, Stanford, California, March 2014

Ford-Jones, L: Canadian Pediatric Society Victor Marchessault Advocacy Award, Canadian Pediatric Society, Canadian Pediatric Society Conference, Montreal, Quebec, June 2014

Guttmann, A: Division of Paediatric Medicine Research Award, The Hospital for Sick Children, Toronto, Ontario, July 2013

Kanani, R: Winner of the Lionel Weinstein Clerkship Teaching Award, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Maguire, J: Winner of the CIHR New Investigator Award, Ottawa, Ontario, July 2013

Maguire, J: Winner of the Young Investigator Award, Canadian Paediatric Society, Edmonton, Alberta, June 2013

Mozes, Y: Winner of the Marvin Gerstein Award, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

PACT team: Promising project for pediatric healthcare professionals, the people's choice award (voted best app by all conference attendees), and the Mobile Med award, HackingHealth Kids, The Hospital for Sick Children, Toronto, Ontario, May 2014

Parkin, P: Winner of the POWER Award for excellence in post-graduate teaching, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Pope, E: Winner of the 2014 Recognition by Faculty of 1000 (F1000), London, United Kingdom, 2014

Talarico, S: Winner of the POWER Award for excellence in post-graduate teaching, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Weinstein, M: Winner of the 2014 Recognition by Faculty of 1000 (F1000), London, United Kingdom, 2014

Weinstein, M: Winner of the Colin R. Woolf Award for Teaching Excellence in Continuing Professional Development, Continuing Professional Development in the Faculty of Medicine, at the University of Toronto, Ontario, 2013

Publications

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Grants and Funding

A Scoping Review to Identify What is Known and Unknown About Pain Assessment and Management in Pediatric Palliative Care. Stevens B, Siden H, Widger K, Liben S, Rapoport A, Yamada J. **CIHR.** \$50,000 CAD. October 1-2012 – September 30-2013

A multi-disciplinary kawasaki disease clinic: what's DAT got to do with it? Schwartz SB, Yeung R. **Paediatric Consultants Partnership, Creative Professional Activity Grant. Department of Paediatric, University of Toronto. Collaborators.** \$5,000 CAD. January 1-2014-December 31-2014

Abdominal visceral fat measured in early pregnancy and the risk of gestational diabetes mellitus. Ray JG, Berger H, Maguire J, Retnakaran RR. **CIHR Operating Grant.** \$142,088 CAD. April 1-2013 – September 30-2015

An Analysis of the Outcomes and Implementation of a Universal Funding Program for Insulin Pumps for Youth with Type 1 Diabetes. Guttman A, Daneman D. **The Hospital for Sick Children Department of Paediatrics Creative Professional Activities Grant.** \$9,185 CAD. January 1-2012 – Present

An exploration of care mapping among families of children with medical complexity (CMC). Adams S, Kanani R, Cohen E, Mahant S, Nicholas D. **Norman Saunders Complex Care Grant Competition.** \$24,515 CAD. October 1-2013-March 31-2014

Applied Chair in Reproductive, Child and Youth Health Services and Policy Research Award. Guttman A. "Evidence-Informed Health Services Delivery for Canadian Children and Youth" **Canadian Institutes of Health Research.** \$185,000/yr CAD. December 1-2012 – March 31-2017

Asthma, Vitamin D Levels and Health Care Utilization in Young Children. Parkin P, Maguire J, To T, Birken C. **Lung Association/Ontario Thoracic Society.** \$49,193 CAD. July 1-2013-June 30-2014

Blood Lead, Mercury And Cadmium Levels In Children Under The Age Of 6 In The Greater Toronto Area: Collaboration Between TARGet Kids! and Toronto Public Health and Public Health Ontario. Copes R, Birken C, Maguire J, Parkin P: **Public Health Ontario.** \$134,790 CAD. March 1-2013-February 28-2014

BMN004: A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multinational Clinical Study to evaluate the Efficiency and Safety of 2.0mg/kg/week and 2.0 mg/kg/every other week BMN 110 in Patients with Mucopolysaccharidosis IVA (Morquio A Syndrome). Chris Hendricz C, Raiman J, Weinstein M, Faghfoury H, Al-Hertani W. **Biomarin Pharmaceutical.** \$56,690 CAD per patient. June 1-2012-June 30-2015

Bringing I-PASS to the Bedside: A Communication Bundle to Improve Patient Safety and Experience. Landrigan C, Bismilla Z (Co-Investigator), Coffey T (Site Lead), and co-investigators from each site. **Patient Centered Outcomes Research Institute (PCORI).** \$1,500,000 USD. December 1-2013-January 1-2017

Bundling Effective Resident Handoff Tools to Improve Patient Safety: A Multi-Center Pediatric Residency Quality Improvement Initiative. Landrigan C, Coffey T, Mahant S. **I-PASS Study Group. National Institutes of Health.** \$18,000 USD. August 1-2011-July 31-2013

Cardiac Antibodies as a Mechanism for Right Ventricular Hypertrophy in EB. Sajic D, Pope E, Lara-Corrales I, Hamilton R. **Canadian Dermatology Foundation**. \$5,000 CAD. September 1-2013-August 31-2014

CARE to SLEEP Study. Cohen E, Keilty K. **Norman Saunders Complex Care Research Grant Competition**. \$3,681 CAD. November 1-2012-November 30-2013

CIHR Team in traffic and road injury prevention program for Canadian children. Snowdon AW, Howard AW, Altenhof WJ, Kobti A, Gilliland JA, Ahmed SE, Angell GB, Bruce B, Bussiere D, Georgie VE, Hussine A, Kent RD, Leitch KK, Thrasher C, Worster AS, Birken CS, McClafferty K, Shkrum M. **Canadian Institutes of Health Research**. \$1,744,000. December 1-2010-November 30-2015

Closing the Gap: A Handoff Curriculum for Medical Students. Schwartz SB, Bismilla Z. **Paediatric Consultant's Education Research Grant**. \$5,000 CAD. December 1-2013-December 31-2014

Democratizing Communication in Health Care: Development and Usability Testing of an Online Communication Tool for Collaborative Care in Complex Patients. Husain AF, Cohen E (Co-PIs), Cafazzo J, Russell C, Eaton, Goldman R, Jamieson T, Rapoport A, Stinson J. **Canadian Institutes of Health Research**. \$200,000 CAD. April 1-2012 – March 1-2015

Determinants of late preterm birth. Maguire JL, Sgro MS, Campbell DM, Shah PS, Smith GN, Lee SickKids, Walker M, Mamdani MM. **Physicians Services Incorporated Foundation – Health Services Research Grant**. \$77,500 CAD. April 1-2013 – March 31-2015

Determinants of Late Preterm Birth. Maguire JL, Sgro MS, Campbell DM, Shah PS, Smith GN, Lee SickKids, Walker M, Mamdani MM. **St. Michael's Hospital AFP Innovation Fund**. \$28,138 CAD. April 1-2012 – March 31-2013

Developing and Evaluating a Support Network for Families Caring for Medically Complex Children. Muskat B, Adam S, Cohen E, Hetherington R, Netten K, Soscia J. **Norman Saunders Complex Care Initiative Grant Competition**. \$24,549 CAD. November 1-2011 – November 30- 2013.

Development of a care pathway for children with typical, newly diagnosed ITP at The Hospital for Sick Children. Beck CE, Carcao M, Porter S, Cada M, Blanchette V, Parkin PC: **SickKids Innovation Fund**. \$9,500 CAD. January 1-2014 – December 31-2014

Development of a Care Pathway for Children with Typical, Newly Diagnosed ITP at The Hospital for Sick Children. Beck CE, Carcao M, Porter S, Cada M, Blanchette V, Parkin PC. **SickKids Innovation Fund**. \$9,500 CAD. October 1-2012-September 30-2013.

Development of a protocol for the care of children with typical, newly diagnosed ITP at The Hospital for Sick Children. Beck CE, Carcao M, Porter S, Cada M, Blanchette V, Parkin PC. **Paediatric Consultant's Partnership Grant for Creative Professional Activity**. \$9,638 CAD. January 1-2013 – December 31-2013

Diagnostic Delay in Pediatric Acute Leukemia: Characteristics, Predictors and Associations with Outcome. Sung L, Guttman A. **The Hospital for Sick Children Department of Paediatrics Creative Professional Activities Grant**. \$9,924 CAD. December 1-2012 – Present

DO IT Trial: Vitamin D Outcomes And Interventions In Toddlers. Maguire JL, Birken CS, Hoch J, Loeb M, Mamdani M, Mazzulli T, Parkin P, Thorpe K, Vieth R. **Canadian Institutes of Health Research**. \$429,479. July 1-2011-June 20-2014

DO IT! Trial Extension: Vitamin D Outcomes And Interventions In Toddlers: A TARGET Kids! Randomized Controlled Trial. Maguire JL, Birken CS, Hoch J, Loeb M, Mamdani M, Mazzulli T, Parkin P, Thorpe K, Vieth R. **Thrasher Research Foundation**. \$448,884. March 1-2012-February 28-2015

Do vitamin D fortified cheese and yogurt products support vitamin D status and functional outcomes in young children. Weiler H, Rauch F, Maguire J. **Dairy Farmers of Canada**. \$33,287 CAD. September 1-2013-June 30-2014

Emerging team in rare diseases: achieving the 'triple aim' for inborn errors of metabolism. Potter EK, Chakraborty PK, Coyle DA, Kronick JB, Wilson K, Dodds L, Feigenbaum A, Fell DB, Geraghty MT, Grosse S, Guttman A, Little J, Mhanni A, Miller FA, Mitchell JJ, Nakhla M, Siriwardena K, Speechley KN, Vallance HD, Wilson BJ. **Canadian Institutes of Health Research, Team Grant**. \$298,098/year CAD. April 1-2012 – March 31-2017

Enhancing the Quality of Palliative and End-of-Life Care for Children with Cancer. Canadian Partnership Against Cancer. Widger K, Rapoport A, Bouffet E, Friedrichsdorf S, Greenberg M, Husain A, Liben S, Pole J, Siden H, Whitlock J, Wolfe J. **Palliative and End-of-Life Care (PEOLC) Initiative Request for Proposals** \$959,264 CAD grant + \$25,000 CAD incentive payment (Total = \$984,264). January 1-2014 – December 31-2017

Ensuring effective newborn screening: The case of cystic fibrosis. Miller F, Guttman A. **Canadian Institutes of Health Research, Operating Grant**. \$771,524 CAD. July 1-2010 – June 30-2014

Epidermolysis Bullosa Clinical Characterization and Outcomes Database. Pope E, Lara-Corrales I, Lee M. **EB Medical Research Foundation**. \$12,709 CAD. December 17-2013-December 31-2014

Evaluating Collaborative Care for Postpartum Depression in Pediatric Primary Care Settings (EPDS Trial). Dennis CL, Birken C, Grigoriadis S, Hoch J, Isaranuwachai W, Letouneau N, Maguire J, Parkin P, Thorpe K, Vigod S. **Canadian Institutes of Health Research**. \$981,384 CAD. February 1-2014-January 31-2019

Evaluation of Ontario's Mental Health and Addiction Strategy. Cairney J, Kurdyak P, Guttman A. **Ontario Ministry of Health and Long-term Care**. 5,500,000 CAD. September 1-2011 – March 31-2014

Evaluation of Phase 2 of Ontario's Mental Health and Addiction Strategy and Building a Cross-Sectoral Data System. Kurdyak P, Guttman A. **Ontario Ministry of Health and Long-term Care**. \$10,000,000 CAD. July 1-2014 – June 30-2019

Evaluation of the SickKids Team Obesity Management Program (STOMP). Hamilton, J, Birken CS. **Provincial Council for Maternal & Child Health (PCMCH)**. \$26,729 CAD. May 1-2011-April 30-2013

Exome sequencing a family With Gene-negative Epidermolysis Bullosa Superficialis/Icthyosis Bullosa of Siemens. Pope E, Lara-Corrales I, Hamilton R. **Rare Disease Foundation**. \$3,500 CAD. September 4-2013-September 2-2014

Exploring Continuity, integration, context and curriculum during Longitudinal Integrated Clerkship (LIC) Training. Weyman K, Kulasegaram M, Graves L, Bernstein S, Hawa R, Schreiber M, Martimianakis T, Woods N, Nyhof-Young J, Wright S, Pittini R, Zirkle M. **Education Development Fund** \$9,537 CAD. March 1-2014 – February 28-2015

Exploring continuity, integration, context and curriculum during Longitudinal Integrated Clerkship (LInC) Training. Investigators: Weyman K, Mylopoulos M, Kulasegaram K, Bernstein S, Graves L, Hawa R, Nyhof-Young J, Woods N, Zirkle M, Pittini R, Wright S, Martimianakis T. **Education Development Fund, Faculty of Medicine, University of Toronto.** \$19,075 CAD. January 1-2014 – December 31-2014

Fit For School, Fit For Life: Child Health and School Readiness. Birken CS, Janus M, Maguire J, Parkin P, Randall-Simpson J, Tremblay M, Lebovic G, Mamdani M. **Canadian Institutes of Health Research.** \$1,649,946 CAD. February 1-2014-January 31-2018

Fit for School, Fit for Life – Child Health and School Readiness. Birken CS, Magdalena J, Duku EK, Lebovic G, Maguire JL, Mamdani M, Parkin PC, Randall-Simpson JA, Tremblay MS. **CIHR Operating Grant.** \$1,256,576 CAD. April 1-2014 – March 31-2019

Health System Performance Research Network (HSPRN). Wodchis W, Guttman A. Lead Child Health Theme. **Ontario Ministry of Health and Long-term Care, Health System Research Fund.** \$4,645,190 CAD. April 1-2013 – March 31-2016

HOLD IT: Health Outcomes of Low vitamin D In Toddlers: A TARGet Kids! longitudinal cohort study. Maguire JL, Birken CS, Jiang D, Mamdani M, McCrindle B, O'Connor DL, Parkin PC, Vieth R; and Collaborators, Feldman M, Ipp M, Jacobson S, Peer M, Taylor C, Chisamore B, Lau E, Do A, Neelands P, Perlmutter M, Saunderson J, Vaughan J. **Canadian Institutes of Health Research.** \$563,183 CAD. July 1-2010-June 30-2014

How have we changed? Pediatric Palliative Care in Canada, 2002 – 2012. Widger K, Davies D, Gregoire M, Harlos M, Liben S, Robertson M, Rapoport A, Siden H, Vadeboncoeur C. **Connaught New Researcher Award, University of Toronto.** \$10,000 CAD. January 1-2013 – December 31-2014

Impact of Institutional Bronchiolitis Clinical Practice Guidelines on Resource Utilization. Mittal V, Morse R, Wilson K, Myers AG, Parikh K, Adusmilli S, Mahant S, Mussman G, Hain P, Hall M, Shah SS. **Children's Hospital Association.** \$520,983 CAD. February 1-2012-September 30-2013

Improving resident handoff in teaching hospitals: Understanding implementation and effectiveness of a handoff bundle. Coffey M, Starmer A, Mahant S, Matlow A, Bismilla Z, Landrigan C. **Physician Services Incorporated.** \$154,820 CAD. October 1-2011-September 30-2015

Inflammatory Bowel Disease in Immigrants to Canada and their Children: Epidemiology and Access to Specialist Care Children's Hospital Academic Medical Organization and Ontario Ministry of Health and Long-Term Care Academic Health Sciences Centres. Benchimol E, Guttman A. **AFP Innovation Fund.** \$57,485 CAD. January 1-2012 – December 31-2014

Initiative to Maximize Progress in AYA Cancer Therapy (IMPACT). Baxter N, Nathan P, Pole J, Gupta S, Sutradhar R, Rapoport A, Greenberg M, Gupta A, Sawka A, Barr R, Sussman J, Wasserman J. **Canadian Institutes of Health Research (CIHR) Operating Grant Competition.** \$913,872.00 CAD. January 1-2014 – December 31-2019

Intrapleural DNase and Tissue Plasminogen Activator in Pediatric Empyema (DTPA trial). Cohen E, Connolly B, Hoch J, Laberge S, Maclusky I, Mahant S, Mamdani M, Ratjen F, Thorpe K. **Canadian Institutes of Health Research.** \$315,121 CAD. July 1-2012-June 30-2016

Intrapleural DNase and Tissue Plasminogen Activator in Pediatric Empyema (DTPA trial). Cohen E, Connolly B, Hoch J, Laberge S, Maclusky I, Mahant S, Mamdani M, Ratjen F, Thorpe K. **Physician Services Incorporated.** \$91,000 CAD. January 1-2013-January 31-2014

Intravenous fluid-related symptomatic acute hyponatremia in Canadian children. Beck CE, Bohn D, Choong K, Hartfield D, Holland J, Lacroix J, Puligandla P, Friedman J. **Quality and Risk Management, The Hospital for Sick Children.** \$10,000 CAD. September 1-2012 – March 31, 2015

Low milk intake, vitamin D deficiency and fracture risk in young children. Maguire JL, Birken CS, Howard A, Adeli K, Sochett E, Thorpe K, Parkin PC. **Dairy Farmers of Canada.** \$90,000 CAD. January 1-2011-December 31-2013

Molecular diagnostics to improve the care of children with complicated pneumonia. Wadhwa A, Weinstein M. **Pediatric Consultants Partnership. The Hospital for Sick Children.** \$10,000 CAD. January 1-2013 – December 31-2014

OptEC: Optimizing Early Child Development in the Primary Care Physician Practice Setting: Pragmatic RCT of Iron Treatment for Young Children with Non-Anemic Iron Deficiency. Parkin PC, Birken CS, Fehlings D, MacArthur C, Maguire J, Mamak E, Mamdani M, Thorpe K, Zlotkin S. **Canadian Institutes of Health Research.** \$541,567 CAD. August 1-2011-July 31-2016

Parathyroid-vitamin D axis dysregulation in early-onset infant stunting in resource-poor settings. Roth D, Zlotkin S, Willan A, Weksburg R, Adeli K, Morris S, Mahmud A, Ahmed T, Baqui A, Shah R. **The Bill & Melinda Gates Foundation.** \$2,342,887 USD. November 1-2012 – October 30-2016

Patient Disclosure of Adverse Events in Paediatrics: Synthesis of Literature and Research Priorities. Koller D, Espin S, Friedman JN, Coffey M, Rummens A. **Institute of Human Development, Child and Youth Health.** \$25,000 CAD. October 1-2013-October 30-2014

Patient Disclosure of Adverse Events in Paediatrics: Synthesis of Literature and Research Priorities. Koller D, Espin S, Friedman J, Coffey M, Rummens A. **Canadian Institute of Health and Research, Planning Grant, Institute of Human Development, Child and Youth Health.** \$25,000CAD. October 15-2013-October 15-2014

PePA: A new tool for measuring length and height in pediatrics. Mousaki M, Roth DE, Zlotkin S. **The Hospital for Sick Children Innovation Fund.** \$9,981 CAD. November 1-2013 – November 1-2014

Pilot randomized control trial of an online communication tool for collaborative care in complex patients. Husain A, Stinson J, Rapoport A, Cohen E, Jamieson T, Cafazzo J, Grunfield E, Bezjak A, Goldman R, Sawka C, Guerriere. **MSH-UHN AMO Innovation Fund. Innovation Fund.** \$199,974 CAD. January 1-2013 – December 31-2015

PRIDE-T: Prevalence and Risk Factors for Iron Deficiency among Toddlers served at Kingston Community Health Centres. Bayoumi I, Patel R, Parkin P, Webb J, Link K, and Lebovic G. **College of Family Physicians of Canada Janus.** \$10,000. July 1-2013 – June 30-2014

Procedural Skills Training in Pediatric Residency. Bismilla Z, Feldman M, Amin H, Dubrowski A. **Paediatric Consultants Education Research Grant.** \$4,085 CAD. May 1-2013-May 31-2014

PROMOTE: Preschoolers at Risk-Obesity Trajectories & Cardiometabolic Factors: Towards Early Identification. Birken CS, Adeli K, Hamilton J, Hanley A, Maguire J, McCrindle B, Parkin PC; and Collaborators, Feldman M, Ipp M, Jacobson S, Peer M, Taylor C, Chisamore B, Lau E, Do A, Neelands P, Perlmutter M, Saunderson J, Vaughan J. **Canadian Institutes of Health Research.** \$655,641 CAD. March 1-2012-February 28-2016

Prospective observational study of antibiotic-associated diarrhea in children. Johnson B, Guyatt G, Loeb M, Mahant S, Maguire J, Sadeghirah B, Sherman P, Parkin P. **Bio-K Plus International Inc.** \$33,287 CAD. January 1-2013-May 31-2015

RaTs On the Wards! A Qualitative Study of a Resident as Teacher Elective Experience. Bernstein S. **Paediatric Consultants Education Innovation and Development.** \$3,780 CAD. April 1-2013-March 31-2014

Reporting of studies Conducted using Observational Routinely-collected Data (RECORD). Benchimol E, Guttman A. **Canadian Institutes of Health Research, Operating Grant.** \$120,000 CAD. July 1-2013 – June 30-2015

Resource Stewardship Workshop: Teaching Internal Medicine and Pediatric Residents to Communicate Effectively with Patients to Avoid Potential Harm from Unnecessary Diagnosis Tests. Mukerji G, Schwartz S, Moore Hepburn C, Atkinson A, Wong BMF, Stroud L, Weinerman A. University of Toronto Faculty of Medicine, **2014-2015 Educational Development Fund.** \$5,823 CAD. July 1-2014-June 30-2015

Screening and Early Identification of Preschool-Aged Children with Disruptive Behavior Disorders in Primary Care Settings. Charach A, Parkin P, Lipman E, Ageranioti Belanger S. **SickKids Department of Psychiatry Endowment Fund Research Grant.** \$21,825 CAD. March 1-2013-February 28-2014

Sibling's Perspectives: Toward a Better Understanding of their Involvement with a Dying Child. Russell CE, Barrera M, Beaune L, Cadell S, Rapoport A, Rugg M, Steele R, Widger K. **Innovation Fund in Children's Palliative Care Research.** \$9,860 CAD. January 1-2010 – January 31-2014

Sleep Disturbance in Family Caregivers of Technology Dependent Children. Keilty K, Stremler R, Cohen E, Pullenayegum E, Spalding K: **Ontario Respiratory Care Society (ORCS) of the Ontario Lung Association,** \$15,000CAD; **Canadian Respiratory Health Professionals (CRHP) of the Canadian Lung Association,** \$8,348 CAD. July 1-2012 – July 31-2013

Start-up Operating. Birken C. **SickKids Research Institute.** \$114,780 CAD. September 1-2012-August 31-2014

Surgical interventions and outcomes of children with trisomy 13 and 18 in Ontario. Nelson K, Guttman A. **Norman Saunders Complex Care Initiative.** \$20,000 CAD. November 1-2012 – October 31-2014

Surgical interventions and outcomes of children with trisomy 13 and 18 in Ontario. Nelson K, Mahant S, Cohen E, Guttman A. **Norman Saunders Complex Care Research Grant Competition.** \$20,000 CAD. November 1-2012-November 1-2013

Targeting Child Health: Creating a preventive child health research program. Maguire JL. **CIHR New Investigator Award.** \$300,000 CAD. July 1-2013 – June 30-2018

Teaching Medical Error Disclosure Skills to Postgraduate Internal Medicine, Surgery and Pediatrics Trainees. Stroud L, Wong B, Coffey M, Atkinson A, Matlow A, Papia G, McDonald-Blumer H. **2012 Royal College/Associated Medical Services CanMEDS Research and Development Grant (AMS CanMEDS R&D),** \$24,803 CAD. July 1-2012-January 1-2014

The Bedside Paediatric Early Warning System: A Cluster Randomized Controlled Trial Of Mortality And Processes Of Care. Parshuram C, Dryden-Palmer K, Farrell C, Gilleland JC, Gottesman RD, Hunt EA, Hutchison JS, Joffe AR, Kotsakis A, Lacroix J, Lobos AT, Nadkarni V, Parkin P, Wensley DF, Willan AR. **Canadian Institutes of Health Research.** \$3,266,764 CAD. June 1-2010-May 31-2014

The implementation of a Night Float system at a large Canadian Paediatric Training Program: Perceived impact on patient care, education and quality of life. Bismilla Z, Atkinson A, Mylopoulos M, Talarico, S. **Paediatric Consultants Education Research Grant.** \$5000 CAD. December 1-2013 – December 31-2014

The Influence of Temperament on Outdoor Play in Early Childhood. Sharp J, Birken CS, Maguire J, Parkin PC, Lebovic G, Carsley S, Abdullah K. **Academic Pediatric Association Resident Investigator Award (RIA) Program.** \$5,000 CAD. September 1-2014-August 31-2015

The Rural/Urban Divide in Inflammatory Bowel Disease: Access, incidence, outcomes and access to care in Canada. Benchimol E, Guttman A. **Janssen Future Leaders in IBD Grant.** \$75,000 CAD. November 1-2012 – October 31-2014

The TARGet Kids! Research Study. Maguire JL, Birken CS, Parkin PC. **St. Michael's Hospital Foundation.** \$489,650 CAD. February 1-2012 – January 31-2017

The Validation of iscorEB for Patients with Epidermolysis Bullosa. Pope E, Bruckner A. **EB Medical Research Foundation and Jackson Gabriel Silver Foundation.** \$17,136 CAD. January 8-2014-December 31-2014

Translating Emergency Knowledge for Kids (TREKK). Wittmeier K, Guttman A. **Networks of Centres of Excellence (NCE) Knowledge Mobilization Initiative.** \$1,599,184 CAD. October 1-2011 – September 30-2015

Understanding the effects of social, behavioural and metabolic factors on early childhood growth trajectories among Aboriginal Canadians. Hanley AJ, Birken CS, Hamilton JK, Harris SB, Maguire JL, Parkin PC, Rae J, Zinman B. **CIHR Operating Grant.** \$208,768 CAD. April 1-2013 – March 31-2018

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Staff

Division Head

Dr. Jeremy Friedman
(to Jan 31, 2014)
Dr. Michelle Shouldice
(Feb 1, 2014 – present)

General Paediatric Hospital Medicine and Complex Care Full-Time

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Dr. Stacey Bernstein
Dr. Catherine Birken
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Part-Time

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respiratory medicine

Suhail Al-Saleh

Divisional Overview

The Division of Respiratory Medicine is committed to excellence in patient, care, education and research.

Our multidisciplinary team continues to provide comprehensive inpatient and outpatient respiratory programs for a full range of paediatric pulmonary diseases including asthma, cystic fibrosis, primary ciliary dyskinesia, chronic respiratory insufficiency, lung disease due to prematurity, congenital malformations, patients with end-stage lung disease requiring lung transplantation and sleep related respiratory disorders. Our Respiratory Medicine Program also provides a comprehensive range of ambulatory and diagnostic services.

Our ambulatory clinics have had approximately 4600 patient visits this past year and are comprised of: Asthma Clinic, Complex Respiratory Care/Home Ventilation clinic, Craniofacial/Sleep clinic, Cystic Fibrosis clinic, General Respiratory clinic, Hereditary Hemorrhagic Telangiectasia clinic, Interstitial Lung Disease clinic, Primary Ciliary Dyskinesia clinic, Lung Transplant clinic, Narcolepsy clinic, Sleep Disorders clinic, Tracheoesophageal Fistula clinic.

Over the past year, we have performed over 6500 diagnostic tests and these have included Flexible Bronchoscopy, Pulmonary Function Testing, Polysomnogram (Sleep Studies) and Exercise Tests.

The Paediatric Lung Transplant Program is led by two of our faculty, Dr. Melinda Solomon and Dr. Hartmut Grasemann. They provide expert pre-transplant, post-transplant and follow-up care to our paediatric lung transplant population. Last year we had the highest number of pediatric lung transplantations since the inception of the program in 1995.

The Sleep Medicine Program has undergone a significant expansion this past year and as such, is the largest and most comprehensive paediatric sleep program in Canada. We currently have 3 physicians, Dr. Indra Narang (Director), Dr. Reshma Amin and Dr. Suhail Al-Saleh committed to the care of paediatric patients with sleep related breathing disorders. Our sleep diagnostic facility is now open 7 days a week and is able to perform up to 35 Polysomnograms (PSG's) per week for both in and out-patients. In addition, we provide a range of specialized sleep clinics including general sleep clinic, multi-disciplinary sleep clinic, narcolepsy clinic and Dreams (joint Sleep/ENT) clinic. Our Dreams clinic, working alongside Dr. Evan Propst now provides state of the art Cine MRI scans of the airway for the comprehensive assessment of children with persistent sleep disorders despite conventional surgical interventions. In addition, Suhail Al-Saleh has started a collaborative program with the craniofacial program which has resulted in a specialized craniofacial sleep clinic in 2014 that follows children with syndromic craniosynostosis longitudinally.

The Home Ventilation program, led by Dr. Reshma Amin and Dr. Theo Moraes, continues to be the largest program in the country providing comprehensive care to over two hundred children at risk of or requiring long-term ventilation. This past year the program has partnered with Holland Bloorview Rehabilitation Hospital to streamline and coordinate care of these children. The program continues to grow annually with more children initiated on non-invasive and invasive ventilation this past year than ever before.

The faculty is continually looking for new ideas or methods to improve patient care and the services we provide. Some of our current innovative projects include:

Dr. Reshma Amin leads a hospital initiative at SickKids to develop a formal electronic integrated care pathway for children receiving long-term ventilation to decrease length of stay and enhance patient safety.

Dr. Melinda Solomon co-leads the SickKids Cystic Fibrosis Quality Improvement project (CF QI) to improve the nutritional status of cystic fibrosis patients.

Dr. Theo Moraes is piloting the “Smoking Cessation Program” in The Hospital for Sick Children to help family members of patients to quit smoking in the interest of their child’s health.

Dr. Felix Ratjen is developing screening guidelines for hereditary hemorrhagic telangiectasia and has been working with an international team of experts to develop international standards of care for cystic fibrosis.

Dr. Sharon Dell, alongside Dr. Priscilla Chu in the Division of Surgery has established a new multi-disciplinary Tracheoesophageal Fistula (TEF) for the comprehensive evaluation and management of pulmonary disorders in this population.

Many of our staff physicians are advocates not only at SickKids but also within the community.

Dr. Amin co-chaired a family education day for Spinal Muscular Atrophy on September 22, 2013. This was a one day family education event hosted by SickKids and Holland Bloorview Rehabilitation Center. She is also working at the local, provincial and national level to improve the infrastructure and quality of care of children receiving long-term ventilation at home from initiation of ventilation through to transition home, follow-up and transition to adult care.

This past year was also a time to celebrate, as many of our faculty were promoted.

Dr. Suhail Al-Saleh, our newest faculty member to our division was appointed to Assistant Professor in the Department of Paediatrics in the Faculty of Medicine, University of Toronto, in July 2013.

Dr. Indra Narang was promoted to Associate Professor in the Department of Paediatrics in the Faculty of Medicine in June 2014.

Dr. Reshma Amin was cross-appointed to the Institute of Health Policy, Management and Evaluation as an Assistant Professor in June 2014.

Dr. Neil Sweezey joined the University of Toronto Undergraduate Medical Education as the Director for Comprehensive Research Experience for Medical Students (CREMS) Programs at the Faculty of Medicine.

Dr. Sharon Dell, who is the director of the Clinical Epidemiology and Health Care Research graduate program in IHPME at the University of Toronto, is currently working on the expansion of the program to include MD-PhD students from the Faculty of Medicine at the University of Toronto.

Education

The Division’s role in education has continued its excellence at all levels of training; medical students, core residents, subspecialty residents, fellows as well as in continuing medical education. Our training program, led by Dr. Melinda Solomon, is accredited by the Royal College of Physician and Surgeons. Dr. Reshma Amin continues to be the Undergraduate Medical Education lead for the Division. Dr. Suhail Al-Saleh, along with Drs. Indra Narang and Reshma Amin have developed a paediatric Sleep Medicine Fellowship Program.

Research

Research continues to grow and develop. The major research focus include the markers of early lung disease in preschool children, determining outcome measures for clinical trials in cystic fibrosis as well as clinical and epidemiological studies in patients with asthma, cystic fibrosis and various respiratory diseases and sleep disorders.

Dr. Padmaja Subbarao continues as the co-director and co-principal investigator of the Canadian Healthy Infant Development (CHILD) Study along with Dr. Malcolm Sears of McMaster University. CHILD is still the largest birth cohort in Canadian history with over 3600 participants. Dr. Subbarao has successfully received research funding from the Canadian Institutes of Health and Research (CIHR) for her project on lung function in preschool children.

Dr. Theo Moraes has a research program centered on viral inflammation in the lung with a focus on respiratory syncytial virus (RSV). He was a co-author on a recent Nature Medicine manuscript describing a novel role for matrix metalloproteinases in the regulation of interferon levels post viral infection. His lab cultures primary human nasal epithelial cells to better understand viral infections. More recently these cultures are being evaluated as a tool for a more personalized medicine approach in the management of CF.

Our newest faculty member to the division, Dr. Suhail Al-Saleh was recently appointed the SickKids Research Institute as a Project Investigator, and is currently working on the effects of sleep disordered breathing on health related quality of life in children with medical complexity as well as the prevalence of sleep disordered breathing in children with different underlying medical diagnoses.

Dr. Indra Narang is currently conducting a large clinical trial evaluating cardiopulmonary and neurocognitive performance in obese children with obstructive sleep apnea. More recently, she has been appointed as an executive member and the paediatric co-chair of a large sleep network, the Canadian Sleep and Circadian Network involving adult and paediatric sleep researchers across Canada to establish a nationwide research program.

Dr. Reshma Amin’s research program focuses on improving patient safety and quality of care for children receiving long-term ventilation. She is currently developing and validating a Canadian tool to assess competency for caregivers of children receiving long-term mechanical ventilation. She is also prospectively studying the ‘experience’ of transition for ventilator assisted adolescents and their family caregivers, in collaboration with WestPark Rehabilitation hospital.

Dr. Felix Ratjen continues to have several research projects sponsored by industry and non-industry funding agencies. He has a long standing interest in assessing early intervention strategies in cystic fibrosis as well as in developing outcome measures for pediatric lung diseases. Dr. Ratjen and his team just recently validated multiple breath washout technology as an early disease marker in CF. This led to four interventional studies involving hypertonic saline, dornase alfa and most recently ivacaftor, a CFTR potentiator. These studies performed in school age children form the basis for the development of a core site for multiple breath washout testing in North America which has been developed in close collaboration with Dr. Jane Davies at the Royal Brompton in London, who is leading the core facility for the European Clinical Trial network. This infrastructure is currently being used for interventional studies involving CFTR modulating therapies. In parallel, Dr. Ratjen’s team continues to validate the technology for use in younger children with the future goal of using this methodology for interventional studies in infants and preschool children.

For a more complete description of our research interests, please visit our website.

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Books and Chapters

Amin R, Ratjen F. Outcome of clinical trials for pulmonary therapeutics in cystic fibrosis. In: *European Respiratory Monograph* (Kolb M, Vogelmeier C, eds). European Respiratory Society, Norwich, UK. 2013; 62: pp 54-69.

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Grants and Funding

A phase 3 efficacy and safety study of PTC124 as an oral treatment for nonsense-mutation-medicated cystic fibrosis. Ratjen F, Solomon M. **PTC Therapeutics**. \$15,771.00 CAD. April 1-2012-March 31-2014

A phase 3, randomized, double blind, placebo controlled, parallel group study to evaluate the efficacy and safety of lumacaftor monotherapy and in combination with Ivacaftor in subjects aged twelve years and older with cystic fibrosis, homozygous for the F508del CFTR mutation. Ratjen F, Solomon M. **Vertex Pharmaceuticals**. \$104,910 CAD. April 1-2013-March 31-2014

A qualitative study to explore the barriers to positive airway pressure (PAP) therapy in children with obstructive sleep apnea. Narang I, Baker A, Toulany A. **Paediatric Consultants Partnership's Grants for Creative Professional Activity, The Hospital for Sick Children**. \$9,926.00 CAD. April 1-2015 – May 1-2015

A randomized, multicenter, double-blind, placebo-controlled, crossover trial determining the efficacy of dry powder Mannitol in improving lung function in subjects with Cystic Fibrosis aged six to seventeen years. Solomon M, Grasemann H. **Pharmaxis**. \$51,640.00 CAD. April 1-2014-March 31-2015

Arginase inhibition to augment nitric oxide production in cystic fibrosis. Grasemann H (PI), Ratjen F. **Cystic Fibrosis Canada**. \$235,468 CAD. April 2014-March 2016

Development of novel clinical tests to diagnose and monitor asthma in preschool children. Subbarao P, Stanojevic S, Boutis K. \$92,335 CAD. **Ontario Thoracic Society**. July 1-2013 -June 31-2016

Emerging team grant in cystic fibrosis. From genes, to proteins, cells, tissues and patients. Ratjen F, Grasemann H. **Canadian Cystic Fibrosis Foundation**. \$50,000 USD. December 1-2009-November 30-2014

Emerging team grant in cystic fibrosis therapy-From genes, to proteins, cells, tissues and patients. Ratjen F, Grasemann H, Ellis J, Hu J, Bear C, Rotin D, Rossant J, Durie P, Viirre R. **Canadian Institutes of Health Research**. \$2,401,449 CAD. December 1-2009-November 30-2014

Enhancing CD8 T cell responses to RSV (Respiratory Syncytial Virus). Moraes T. **Canadian Institutes of Health Research/SickKids Foundation**. \$300,000 CAD. April 1-2011-March 31-2015

ESPRIT-CF (Evaluation of Satisfaction, Persistence and response to inhaled Tobramycin). Solomon M. **Novartis**. \$19,180.00 CAD (\$400 CAD per Patient). April 1-2014-March 31-2015

Exome sequencing in Primary Ciliary Dyskinesia. Dell S, Hall D, Kim R. **McLaughlin Centre, University of Toronto, Accelerator Grant in Genomic Medicine #MC-2012 08**. \$30,000 CAD. July 1-2012-June 30-2014

Functional analyses of two novels, developmentally-regulated glucocorticoid-responsive genes in fetal lung. Kaplan F, Swezey N. **Canadian Institutes of Health Research**. \$155,297 CAD per annum. April 1-2011 – March 31-2016

Generating iPS cells in Qatar's CF patient population. Bear C, Ratjen F. **Al Qamra Holding Group**. \$1,015,884 USD. January 17-2014 – January 16-2015

Incidence of altered craniofacial morphology and malocclusion in children and youth with obstructive sleep apnea. Hunyh N, Almeida F, Amin R, Montpetit A, Jacob S, Lowe A, Pliska B, Chadha N, Kirk V, Cholette M, Major P, Wittmans M, Weiss S, Narang I, Corkum P, Goddday R, Russell K. **SickKids Foundation New Investigator Grant Award**. \$280,000 CAD. June 1-2013 – July 31-2016

Intrapleural DNase and tissue plasminogen activator in pediatric empyema (DTPA trial). Cohen E (PI), Connolly B, Hoch J, Laberge S, Maclusky I, Mahant S, Mamdani M, Ratjen F, Thorpe K. **Canadian Institutes of Health Research**. \$315,121 CAD. October 1-2012-September 30-2016

Let's fight SMA: A family education day on Spinal Muscular Atrophy. **Funding received from SickKids Foundation** \$5000.00 CAD, **MD Canada** \$2750 CAD, **Fight SMA Canada** \$1250 CAD, **Lifetronics** \$500 CAD. In support of the one day event September 22, 2013

Lung clearance index (LCI) as a marker of early lung disease in preschool children. Ratjen F. **National Institutes of Health Research-National Heart Lung and Blood Institute**. 1,738,992.71 USD. September 1-2012 – August 31-2017

Lung Function in preschool children: Utility of diagnosis of asthma. Subbarao P, Ratjen F, Sears M, Maksym G, Hall G, Turvey S, Chilvers M. **Canadian Institutes of Health Research**. \$447,195 CAD. April 1-2014 – March 31-2019

Modulation by sex hormones of inflammation and susceptibility to *Pseudomonas aeruginosa* in cystic fibrosis airways. Swezey N. **Cystic Fibrosis Canada**. \$90,000.00 CAD per annum. April 1-2011-March 31-2014

Molecular diagnostics to improve the care of children with complicated pneumonia. Wadhwa A. **Pediatric Consultants Partnership, SickKids Hospital, Toronto.** \$10,000.00 CAD. July 2013-June 2014

Phase 3, randomized, double-blind, placebo-controlled, parallel-group study to evaluate the efficacy and safety of lumacaftor monotherapy and in combination with ivacaftor in subjects aged twelve years and older with cystic fibrosis, homozygous for the F508del-CFTR mutation. Ratjen F. **Vertex Pharmaceuticals Inc.** \$14,426.00 CAD per patient. July 15-2013 – December 31-2014

Primary human nasal epithelial cell culture in CF to test for responses to CFTR modulators. Moraes T. **Cystic Fibrosis Canada.** \$15,000.00 CAD. July 1-2014-June 31-2015

Randomized, double-blind, placebo-controlled parallel-group trial to confirm the efficacy after twelve weeks and the safety of tiotropium 5 µg administered once daily via the Respimat® device in patients with cystic fibrosis. Ratjen F, Solomon M. **Boehringer Ingelheim, Burlington, ON, Canada.** \$45,023.01 CAD. April 1-2011-March 31-2015

Randomized, double-blind, placebo-controlled parallel-group trial to confirm the efficacy after twelve weeks and the safety of tiotropium 5 µg administered once daily via the Respimat® device in patients with cystic fibrosis. Ratjen F. **Boehringer-Ingelheim.** \$5,023.00 CAD. Apr 1-2011-March 31-2015

Randomized, double-blind, placebo-controlled, cross-over multi-center study to assess the efficacy and safety of inhaled Tobramycin nebuliser solution (TOBI®) for the treatment of early infections of P aeruginosa in cystic fibrosis subjects aged from three months to less than seven years. Ratjen F. **Novartis Pharmaceuticals Inc.** \$6,750 CAD per patient. June 29-2010 – Present

Screening for pompes disease in children with central hypoventilation. Narang I. **Genzyme Canada.** \$30,000.00 CAD. March 1-2014-April 30-2016

SHIP (Saline hypertonic in preschoolers) study – planning grant. Rosenfeld M, Ratjen F. **Cystic Fibrosis Foundation Therapeutics Inc.** \$205,764.00 USD. November 1-2013-October 31-2014

Short-chain fatty acids in the cystic fibrosis lung. Grasmann H, Waters V. **SickKids CF Center Catalyst Research Grant.** \$50,000.00 CAD. June 2014-December 2015

Stacking exercises attenuate the decline in forced vital capacity and sick time (STEADFAST). Katz S, Mah J, MacLusky I, Kovesi T, McMillan H, Momoli F, Borrowman N, McKim D, Aaron S, Spier S, Heletea M, Kirk V, Seear M, Daigneault P, Pasterkamp H, McAdam L, Diem Nguyen T, Hughes D, Zielinski D, Amin R, Majaesic C, Hogan G, Tarnopolsky M, Campbell C. **Jesse's Journey.** \$299,996.00 CAD. June 1-2013 – July 31-2016.

The Canadian respiratory research network: Origin and progression of airway disease (CRRN). Aaron SD, Martin JG, Benedetti A, Blais L, Bosse Y, Boulet L, Bourbeau J, Brooks B, Brownell MD, Carlsten C, Coxson HO, Boucet M, Ducharme FM, Fergusson DA, Fitzgerald JM, Gershon AS, Graham ID, Grishaw JM, Guenette J, Kozyrskyj AL, Landry JS, Lands LC, Leigh R, Leipsic J, Lemiere C, Loughheed MD, Maltais F, Marra CA, Mayo JR, Nair PK, Nuyt AM, O; Byrne PM, O'Donnell DE, Pakhale S, Pare PD, Parraga G, Proud D, Quail JM, Ratjen F, Sadatsafavi M, Sin D, Stampfli MR, Tan W, Thebaud B, To T, Ungar WJ, Van Dam A, Vandemheen K, Zamel Noe. **Canadian Institutes of Health Research.** \$4,350,000 CAD. April 2013 – March 2018

The predictive validity of the assessment of the quality of general movements for identification of long-term neurodevelopmental outcome in preterm infants. Church P, Van Dyke J, Shah V, Dell S, To T. **Physician Services Incorporated Foundation.** \$37,500.00 CAD. May 2014-May 2015

The predictive validity of the assessment of the quality of general movements for identification of long-term neurodevelopmental outcome in preterm infants. Church P, Dyke J, Shah V, Dell S, To T. **Physician Services Incorporated Foundation.** \$37,500.00 CAD. May 2014-May 2015

Staff

Division Head

Dr. Felix Ratjen

Full-Time

Dr. Suhail Al-Saleh
Dr. Reshma Amin
Dr. Sharon Dell
Dr. Hartmut Grasmann
Dr. Theo Moraes
Dr. Indra Narang
Dr. Melinda Solomon
Dr. Padmaja Subbarao
Dr. Neil Sweezey

Part-Time

Dr. Peter Bikangaga
Dr. Joanna Massam
Dr. Charlotte Miller

Cross-Appointees

Dr. Denis Gurwitz
Dr. Elizabeth Tullis

Research Associates

Dr. Sanja Stanojevic
Clinical Fellows (international)
Dr. Hani Al-Saleh
Dr. Saadoun Bin-Hassan
Dr. Diana Reppucci

The transition of teenagers receiving long – term domiciliary mechanical ventilation to adult care: The TTEEN VENT STUDY. Rose L, Amin R, Varadi R, Goldstein R, Amaria K, Dale C. **Ontario Respiratory Care Society Research Grants.** \$15,000 CAD. June 1-2014-July 31-2015

Understanding the impact of maternal and infant nutrition on infant/child health. Anand S, Atkinson S, Becker A, Beyene J, Denburg J, De Souza R, McDonald S, Mente A, Meyre D, Morrison K, Pare G, Sears M, Subbarao P, Surette M, Toon K, Wahi G. **Canadian Institutes of Health Research.** \$399,323 CAD. April 1-2012-March 31-2018

Subspecialty Residents

Dr. Sundeep Bola
Dr. Jackie Chiang
Dr. Tamizan Kherani
Dr. Sarah Kwon
Dr. Tara Mullaney
Dr. Zoe Nugent
Dr. Neha Sharma

Research Fellows

Dr. Ester Maria Pizzaro

Administrative Staff

May Brydges
Gemma Edwin
Beverley Nutt
Jessica Pereira
Victoria Snell



rheumatology

Karen Queffelec and Rayfel Schneider with patient

Divisional Overview

The Division of Rheumatology provides comprehensive care for children with rheumatic diseases. The ambulatory clinics have approximately 5,500 patient visits a year at The Hospital for Sick. In addition to the general rheumatology clinics, there are unique multidisciplinary subspecialty clinics for children with autoinflammatory diseases, dermatomyositis, inflammatory brain disease, morphea, systemic JIA, systemic and neonatal lupus erythematosus, spondylitis, and vasculitis. Many children have benefited from treatments in the medical day care unit, where children receive joint injections, therapeutic infusions or undergo investigations that would normally require in-patient admission.

Our program offers a comprehensive range of services for the evaluation and treatment of children with the vast range of paediatric rheumatic and inflammatory diseases. Rheumatology provides clinical care and undertakes research studies in systemic inflammatory disorders and inflammatory diseases of the bones and joints.

The Division of Rheumatology has one of the largest paediatric rheumatology fellowship training programs in North America and is fully accredited by the Royal College of Physicians and Surgeons of Canada. In April 2013 the Division of Rheumatology underwent Accreditation. The Program received full and unconditional approval from the Royal College.

Honors and Awards

Feldman, B: Winner of the Canadian Rheumatology Association, Distinguished Investigator Award, Whistler, British Columbia, 2014

Feldman, B: Winner of the Ho Family Chair in Autoimmune Diseases, The Hospital for Sick Children, Toronto, Ontario, 2013

Schneider, R: Winner of the Paediatric Academic Leadership, Clinical Educator Award, Paediatric chairs of Canada, Ottawa, Ontario, 2013

Schneider, R: Winner of the Charles Mickle Fellowship Award, University of Toronto, Faculty of Medicine, Toronto, Ontario, 2014

Schneider, R: Runner-up for the Department of Paediatrics Faculty Mentorship Award, The Hospital for Sick Children, Toronto, Ontario, 2014

Tse, S: Dafna Gladman Award Recipient, Ogryzlo Day, University of Toronto, Toronto, Ontario, 2014

Yeung, R: Inaugural Chair, Hak-Ming and Deborah Chiu Chair in Paediatric Translational Research, The Hospital for Sick Children, University of Toronto, Toronto, Ontario, 2013

Publications

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Berard R, Laxer RM. Etanercept (Enbrel) in the treatment of Juvenile Idiopathic Arthritis. *Expert Opinion on Biological Therapy* 2013 September 26.

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Butbul Aviel Y, Tyrrell P, Schneider R, Dhillon S, Feldman BM, Laxer R, Saurenmann RK, Spiegel L, Cameron B, Tse SM, Silverman E: Juvenile Psoriatic Arthritis (JPsA): juvenile arthritis with psoriasis? *Pediatric Rheumatology* 2013; 11 (1): pp 11.

Coltin H, Soon GS, Luca N, Tse SML: Clinician's Corner: A 14-year-old girl with oral and genital ulcers. *Paediatrics & Child Health* 2013; 18 (1): pp 33-35.

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Diamond IR, Grant RC, Feldman BM, Tomlinson GA, Pencharz PB, Ling SC, Moore AM, Wales PW. Expert Beliefs Regarding Novel Lipid-Based Approaches to Pediatric Intestinal Failure-Associated Liver Disease. *JPEN Journal of Parenteral Enteral Nutrition*. 2013 August 5.

Feldman BM. Issues in the measurement of quality of life in hemophilia. *Revista Brasileira Hematologia E Hemoterapia*. 2013; 35 (5): pp 299 – 301.

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Guzman J, Oen K, Tucker LB, Huber AM, Shiff N, Boire G, Scuccimari R, Berard R, Tse SM, Morishita K, Stringer E, Johnson N, Levy DM, Duffy KW, Cabral DA, Rosenberg AM, Larché M, Dancsey P, Petty RE, Laxer RM, Silverman E, Miettunen P, Chetaille AL, Haddad E, Houghton K, Spiegel L, Turvey SE, Schmeling H, Lang B, Ellsworth J, Ramsey S, Bruns A, Campillo S, Benseler S, Chédeville G, Schneider R, Yeung R, Duffy CM, for the ReACCh-Out Investigators. The outcomes of juvenile idiopathic arthritis in children managed with contemporary treatments: results for the ReACCh-Out cohort. *Ann Rheum Dis*. 2014 May; 19.

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Books and Chapters

Chiu YE, Vora S, Laxer RM, Pope E. Connective Tissue Disease. In: *Severe Skin Disease in Children, Beyond Topical Therapy* (Tom WL, ed). Springer 2014: pp 91-122. CPA.

Garcia Romero MT, Laxer R, Pope E. Localized Scleroderma: Symptoms, Diagnosis and Treatment. In: *Scleroderma: Symptoms, Diagnosis and Treatment*. Nova Science Publishers Inc. February 2013. CPA.

Pope E, Laxer R. Diagnosis and Management of Morphea and Lichen Sclerosus and Atrophicus in Children. In: *Pediatric Dermatology*, (Shah K, Staton BF, eds). Elsevier 2014: pp. 309-319 CPA.

Yeung RSM: Kawasaki's Disease. In: *inPractice Rheumatology*. In Practice Resources 2013.

Grants and Funding

A 12-Week Randomized, Double Blind, Placebo-Controlled, Parallel Group, 2-Arm Study to Evaluate the Efficacy and Safety of Tocilizumab in Patients with Active Systemic Juvenile Idiopathic Arthritis (SJIA): With a 92-Week Single Arm Open-Label Extension to Examine the Long Term Use of Tocilizumab, Silverman E, Benseler S, Laxer RM. **Hoffmann-La Roche Study Design Team and International Steering Committee**. \$552,992 CAD. July 1-2008-December 1-2015

A Multi-center, Randomized Parallel Group, Placebo-Controlled Double-Blind Trial to Evaluate the Safety, Efficacy, and Pharmacokinetics of Belimumab, a Human Monoclonal Anti-BLyS Antibody, Plus Standard Therapy in Pediatric Patients with Systemic Lupus Erythematosus (SLE). Co-I: Levy DM. **GlaxoSmithKline**. \$584,240 CAD. March 1-2013-March 1-2016

An Internet-based Psycho-educational Game for Children with Juvenile Idiopathic Arthritis (JIA) and their Parents: A Randomized Controlled Trial. Stinson J, Benseler S, Berard R, Campillo S, Dancey P, Duffy C, Feldman B, Hetherington R, Huber A, Johnson N, Luca N, McGrath P, Palermo T, Shiff N, Spiegel L (Co-I), Tse S, Tucker L, Victor C. **Canadian Institutes of Health Research Operating Grant.** \$773,895 CAD. January 1-2013-January 1-2017

An Open-Label Extension Study of Canakinumab in Patients with Systemic Juvenile Idiopathic Arthritis (SJIA) and Active Systemic Manifestations. Ruperto, N, Brunner H, Lovell D, Martini A, Schneider R, Silverman E, Laxer RM. **Novartis Pharmaceuticals Canada Inc.** \$92,695 CAD. November 1-2013-November 1-2014

Assessing Substance Use and Concurrent Disorders in Adolescents with Chronic Conditions. PI: Leslie K. Co-I: Levy DM. **The Hospital for Sick Children Paediatrics Consultants Partnerships Grant.** \$5,660 CAD. November 1-2013-November 1-2014

Autoantibody conformational epitopes in Lupus and NLE. Hamilton R, Deber C, Jaeggi E, Silverman ED, Gramolini A. **Canadian Institutes of Health Research.** \$926,103 CAD. April 1-2014 -March 1-2018

Autoimmunity in Sisters of SLE Patients (SisSLE): Mapping Auto-immune Phenotypes in Multiplex Families. Co-PIs: Gregeren P and Diamond B. Site PI: Levy DM. **Funding National Institute of Health-National Institute of Allergy and Infectious Disease R01A1068759.** \$485,422 CAD. July 1-2009-September 1-2013

Better Understanding of Kawasaki Disease. Principal Investigator: Rae S. M. Yeung. Co-investigators: Brian McCrindle, Katherine Siminovitch. **Canadian Institutes of Health Research.** \$792,717 CAD. April 1-2011-March 31-2016

Biomarker discovery and mechanisms of fetal pathology in congenital heart block. Hamilton R, Standberg L, Silverman E, Jaeggi E, Gramolini A, Ackerley C. **Canadian Institutes of Health Research.** \$1,031,989 CAD. October 1-2012-September 1-2017

Biomarker discovery and targets of pathology in congenital heart block. Hamilton R, Jaeggi E, Silverman E. **March of Dimes.** \$482,163 CAD. December 1-2011-November 1-2014

Childhood Onset SLE: Determining Long-Term Outcomes. Levy DM. **Physicians Services Incorporated.** \$158,000 CAD. September 1-2011-August 1-2013

Chronic childhood vasculitis: Characterizing the individual rare diseases to improve patient outcomes. Principal Investigator: David Cabral. Co-investigators: S Benseler, D. Foell, J Graham, R. Hancock, R Luzmani, C Ross. Collaborator and Toronto site PI-Rae S. M. Yeung. **Canadian Institutes of Health Research.** \$2,500,000 CAD. April 1-2011-March 31-2016

CIHR Team in Linking Exercise, Physical Activity and Pathophysiology in Childhood Arthritis: A Canadian Collaborative Team. Duffy C, Tucker L, Baxter-Jones A, Houghton K, Macdonald H, McKay H, Oen K, Rosenberg A, Roth J, Ward L, Yeung R, Benseler S, Feldman D, Guzmán J, Stringer E, Boire G, Cabral D, Cameron B, Campillo S, Chédeville G, Cheung A, Dancey P, Ellsworth J, Huber A, Johnson N, Karunanayake C, Lang B, Laxer RM, Miettunen P, Pullenayegum E, Ramsey S, Schneider R, Scuccimarri R, Silverman E, Spiegel L (Co-I), Schmeling H, Tse S, Turvey S, Watanabe Duffy K. **Canadian Institutes of Health Research.** \$2,500,000 CAD. October 1-2010 – September 1-2015

Congenital Heart Block International Research Network. Hamilton R, Jaeggi E, Hornberger L, Silverman ED. **Canadian Institutes of Health Research.** \$311,172 CAD. June 1-2012-May 1-2015

Creation of a Mobile Application to Support Self-Management for Adolescents with SLE. PI: Kaufman M. Co-Is: Levy DM, Taberner C, Ruth T. **Lupus Foundation of America.** \$110,000 CAD. November 1-2012-October 1-2013

Design, Development & Usability Evaluation of a Resident's Guide to Pediatric Rheumatology Mobile Application. Laxer RM (PI). **Pediatric Consultants Education Innovation and Development Grants Committee.** \$5,000 CAD. May 1-2013-May 1-2014

Developing MR imaging guidelines and outcome measures in Juvenile Idiopathic Arthritis: A special interest pediatric research group. Principal Investigator: Andrea S. Doria, Marion A. J. van Rossum. Co-investigators: Susanne Benseler, Elka Miller, Alan Rosenberg, Johannes Roth, Jennifer Stinson, Shirley Tse, Rae S. M. Yeung. **Canadian Institutes of Health Research.** \$24,954 CAD. January 1-2013-January 1-2018

Developing Interdisciplinary Knowledge Exchange Capacity on Imaging Outcome Measures for Assessment of Hemophilic Arthropathy Between China and Canada. Doria A, Benseler SM, Stinson J, Tse S, Spiegel L (C). **Canadian Institutes of Health Research.** \$450,000 CAD. January 1-2013-January 1-2018

Education Innovation and Development Grant. Principal Investigator: Tse SM, Co-Investigators: Ryan Brydges, Michelle Batthish, Tina Martimianakis. **SickKids Pediatric Consultants** \$5,000 CAD, January 1-2013-January 1-2014

Effects of Creatine Supplementation on Muscle Pathophysiology in Children with Dermatomyositis. Stephens S, Feldman BM, Wells GD, Tien I, Schulze A. **Rare Disease Foundation and the BC Children's Hospital Foundation (BCCNF).** \$3,500 CAD. September 1-2012-December 1-2013

Effects of Pubertal Hormone Changes on SLE. O'Neal K. Site PI: Levy DM. **Indiana University.** \$35,000 CAD. October 1-2012-September 1-2015

Evaluating a new Pilot Model of Care for Pediatric Rheumatology in Ontario. PI: Levy DM. Co-I: Feldman B, Berard R, Whitney K, O'Brien C, Lundon K, Graham N. **The Hospital for Sick Children Pediatric Consultants Partnership Grants for Creative Professional Activity.** \$10,000 CAD. April 1-2014-April 1-2015

Fluid Accumulation in Pediatric Postthrombotic Syndrome. Brandao LR, Feldman BM, Stinson J, Kiss A, Avila ML. **PSI Health Research Grant.** \$52,500 CAD. April 1-2013-April 1-2014

From molecules to disease – dissecting the mechanisms underlying tissue specific inflammation in Kawasaki disease. A212 Imaging Inflammation Competition. Principal Investigator. Rae S. M. Yeung. **Arthritis Research Foundation.** \$96,529 CAD. September 1-2013-August 31-2015

Harmonized Approach to the Conduct of Research in Childhood Arthritis Worldwide. Principal Investigator: Rae S. M. Yeung. Co-investigator: Brian Feldman, Collaborators: Lucy Wedderburn, Berent Prakken. **Province of Ontario Ministry of Research and Innovation, International Strategic Opportunities Program.** \$450,000 CAD. September 1-2010-August 31-2013

Jointly Managing JIA Online: An Internet-based Psycho-educational Game for Children with Juvenile Idiopathic Arthritis (JIA) and their Parents. Principal Investigator: Stinson J. Co-Investigator: Berard R, Campillo S, Dancey P, Duffy C, Feldman B, Huber A, Johnson N, Luca N, McGraff P, Shiff N, Spiegel L, Tse SM, Tucker L. **Canadian Institutes of Health Research.** \$166,327 CAD. October 1-2013-April 1-2017

Kawasaki Disease National Surveillance Program. Principal Investigator. Yeung R **Canadian Paediatric Surveillance Program.** \$25,000 CAD. October 1-2013-August 31-2014

Kawasaki disease: On our way to unraveling the pathogenesis. Principal Investigator: Rae S. M. Yeung. Co-investigators: Brian McCrindle, Katherine Siminovitch. **Canadian Institutes of Health Research.** \$798,779 CAD. April 1-2011-March 31-2014

Knowledge Synthesis Program. Principal Investigator: Stinson J. Co- Investigator: Benseler SM, Feldman B, Spiegel L, Tse SM, Campillo S, Duffy C, Hetherington R, Huber A, Luca L, McGrath P, Palermo, Tucker L, Victor C, Shiff N, Johnson N, Dancy P, Berard R. Funding.

Canadian Institutes of Health Research.

\$614,303 CAD. January 1-2012-January 1-2015

Multicenter Study of the Efficacy and Safety of the Adalimumab in Pediatric Patients with Enthesitis Related Arthritis: Burgos-Vargas R and Tse SM. **Abbott International.** \$174,792 CAD. January 1-2010-January 1-2015

Novel MRI Technology as a Biomarker of Early Joint Changes and Responsiveness to Therapy in Juvenile Idiopathic Arthritis. Doria A (PI), Feldman B, Rosenberg A, Schneider R, Silverman E, Spiegel L, Benseler S, Crawley A, Laxer R (Co-I), Tse S, Babyn P, Mikulis D, Miller E, Stinson J, Yeung R. **Canadian Institutes of Health Research, The Natural Sciences and Engineering Research Council of Canada.** \$300,000 CAD. October 1-2012-September 1-2015

Periodic Fever Syndrome in Canada: Canadian Pediatric Society Prevalence Study. Dancey P, Benseler S, Junker A, Laxer RM (Co-PI), Miettunen P, Turner L, Gattorno M. **Canadian Pediatric Society, Novartis Pharmaceuticals Inc.** \$73,270 CAD. September 1-2010-September 1-2014

Precision Decisions in Childhood Arthritis and Uveitis Treatments – The PREDICTS Platform. – Letter of Intent. Principal Investigator: Rae S M. Yeung. Co-investigators: Gary Bader, Susanne Benseler, Claire Bombardier, Brian Feldman, Anna Goldenberg, Jamie Guzman, Quaid Morris, Kiem Oen, Alan Rosenberg, Stephen Scherer, Natalie Shiff, Wendy Ungar. **CIHR Roadmap Signature Initiative Team Grants Competition.** \$15,000 CAD. November 1-2011-November 1-2013

Ro52 Antibody Targets with dual roles in Lupus and NLE. Hamilton R, Silverman ED. **Alliance for Lupus Research (ALR).** \$586,426 CAD. February 1-2014-January 1-2017

Servicing Ontario's Children and Youth with Arthritis – The Advanced Practice Therapist/Remote Consultation Model. Feldman B, Levy DM. **The Arthritis Society Models of Care Catalyst Grant.** \$54,500 CAD. October 1-2013-September 1-2014

Teens Taking Charge: An Internet-Based Self-Management Program for Adolescents with Arthritis: A Randomized Controlled Trial. Stinson, J, Campillo S, Dancey P, Duffy C, Ellsworth J, Feldman B, Fuss S, Hetherington R, Huber A, Johnson N, McGrath P, Oen K, Rosenberg A, Spiegel L (Co-I/ Site PI), Tse, S, Tucker, L, Victor, C. **Canadian Institutes of Health Research.** \$442,140 CAD. April 1-2011-March 1-2014

Tocilizumab in Polyarticular JIA: Silverman ED, Schneider R, Benseler S. **Roche Pharmaceuticals.** \$195,000 CAD (\$65,000 CAD/year) January 1-2010-July 1-2013

Understanding Childhood Arthritis Network (UCAN): Towards a Harmonized Approach to the Conduct of Research in Childhood Arthritis Worldwide. Principal Investigator: Rae S. M. Yeung. Co-investigators: Brian Feldman, Alan Rosenberg, Ciaran Duffy, Susanne Benseler. **Canadian Arthritis Network, Sustained Impact Platform Program (CAN-SIPP)** \$115,000 CAD. September 1-2010 -August 31-2014

Virtual Peer-to-Peer (VP2P) Support Mentoring for Adolescents with Juvenile Idiopathic Arthritis: A Feasibility Pilot Randomized Controlled Trial. Stinson J, Bell M, Ahola Kohut S, Amaria K, Cooper D, Forgeron P, Junkin L, Kaufman M, Luca N, Marcinko J, Spiegel L (Co-PI), Victor JC. **Canadian Institutes of Health Research.** \$99,987 CAD. March 1-2013-February 1-2014

Staff

Division Head

Dr. Brian Feldman

Full-Time

Dr. Ronald Laxer

Dr. Deborah Levy

Dr. Shirley Tse

Dr. Rae Yeung

Clinical Associate

Dr. Linda Hiraki

Part-Time

Dr. Bonnie Cameron

Dr. Rayfel Schneider

Dr. Earl Silverman

Dr. Lynn Spiegel

Cross-Appointees

Dr. Nicholas Blanchette

Dr. Karoon Danayan

Dr. Hans Dosch

Dr. Clare Hutchinson

Dr. Gordon Soon

Research Fellows and Associates

Dr. Daniela Ardelean

Dr. Julie Barsalou

Dr. Ezequiel Borgia

Dr. Lily Lim

Dr. Mira van Veenendaal

Audrey Abad

Shazia Ali

Trang Duong

Haddas Grosbein

Alicia Hilderley

Dan Ignas

Reena Kainth

Marjorie McLimont

Lawrence Ng

Faiz Qureshi

Shehla Sheikh

Clinical Fellows

Dr. Buthaina Al-Adba

Dr. Maya Gerstein

Dr. Rachana Hasija

Subspecialty Residents

Dr. Alisa Rachlis

Dr. Evelyn Rozenblyum

Dr. Dax Rumsey

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Krystal Chiu

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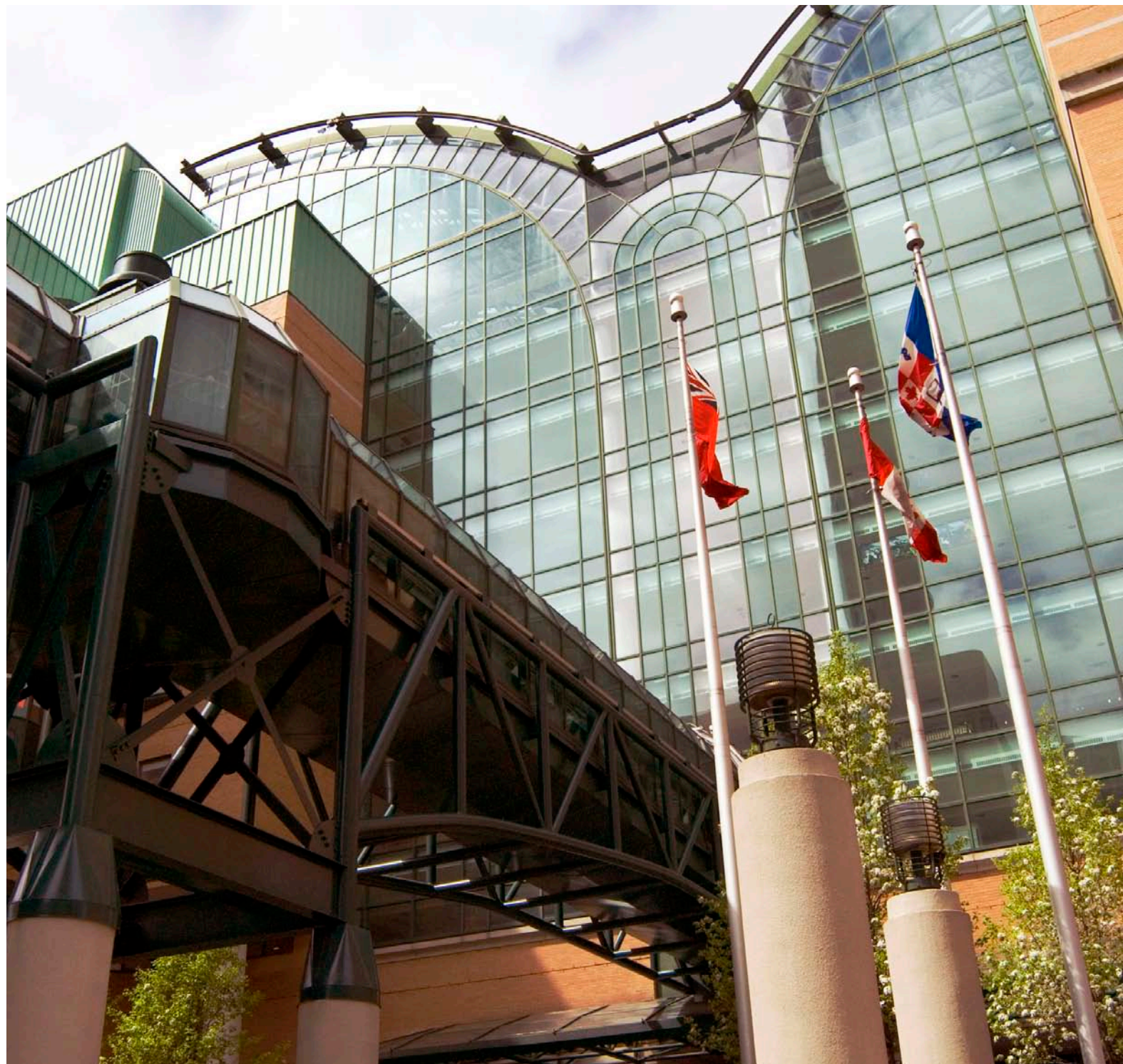
Tanya Lorenc

Kamela Ramlackhan

Tania Viseu

Sara Walker

Joanna Walsh



awards day

Faculty Awards

Teaching/Education Awards

Dr. Nirit Bernhard – R.H.A. Haslam Preclerkship Teaching Award-to the faculty member who has demonstrated excellence in preclerkship teaching

Dr. Dror Koltin – The Lionel Weinstein Clerkship Teaching Award-to the faculty member who has demonstrated excellence in clerkship teaching

Dr. Alan Berzen – The Undergraduate Community Teaching Award in recognition of excellence in the teaching of medical students within community-based hospitals and offices

Dr. Adelle Atkinson – Harry Bain Award to a full-time member of the Department of Paediatrics who has demonstrated excellence in teaching as nominated by core paediatric residents

Dr. Yehuda Nofech-Mozes – Marvin Gerstein Award to a part-time member of the Department of Paediatrics who has demonstrated excellence in teaching as nominated by core paediatric residents

Dr. Yousef Etoom – Postgraduate Community Teaching Award in recognition of excellence in the teaching of paediatric residents within community-based hospitals and offices

POWER Awards

For outstanding contributions for Postgraduate Teaching

Dr. Pat Parkin
Dr. Catherine Birken
Dr. Eddy Lau
Dr. Briseida Mema
Dr. Suzanne Talarico

Dr. Shaun Morris – PERLs Award (Paediatric Educational Resident Lecture Series Award) to the faculty member who has demonstrated commitment to excellence in teaching at the Paediatric academic sessions

Dr. Anupma Wadhwa – Subspecialty Teaching Award to the faculty member who has demonstrated commitment to excellence in teaching the subspecialty residents and clinical fellows

Dr. Shelly Weiss – Continuing Medical Education Award to the faculty member who has demonstrated excellence in course coordination or teaching in a Department of Paediatrics/ University of Toronto Continuing Education sponsored event

Faculty Development

Dr. Gideon Koren – Faculty Mentorship Award

Clinical Awards

Dr. Ron Grant – Richard Rowe Award for Clinical Excellence in Paediatric Medical Care to the physician in the Department of Paediatrics who has demonstrated excellence in the delivery of clinical care in the broadest sense over a significant period of time

Dr. Eyal Cohen – Junior Faculty Award-for Clinical Excellence in Paediatric Medical Care to a physician within the first 5-10 years of appointment to an Academic Health Sciences Centre, who has demonstrated excellence in the delivery of clinical care

Dr. Catherine Birken and **Dr. Jill Hamilton** – Outstanding Clinical Contribution Award: STOMP

Research Awards

Dr. Phil Sherman – Physician Research Award for Career Excellence to recognize sustained excellence by a physician who has generated a body of work with relevance beyond a specific field of study. The awardee will be more 15 or more years beyond the initial date of appointment as a faculty member in an Academic Health Sciences Centre. This award was first awarded in 2005.

Dr. Kathy Boutis – Mid-Career Research Award

Dr. Mark Friedberg – Junior Faculty Research Award to recognize outstanding achievements and progress in research by a physician during the first six years after his/her initial academic appointment and whose primary appointment is in the Department of Paediatrics, University of Toronto. This award was first awarded in 2005.

Paediatric Administrative Award

Sue Morton – In recognition of an administrative support staff member in the Department of Paediatrics who has demonstrated outstanding performance and excellence in all aspects of their role. This individual possesses outstanding communication and interpersonal skills and is motivated to perform above and beyond their daily responsibilities. This award was first awarded in 2007.

Resident and Fellow Awards and Achievements

Teaching/Education Awards

Dr. Joanna Humphreys (PGY3) and **Dr. Michael Khoury (PGY4)** – Christopher Ondaatje Award to a senior resident for excellence in clinical teaching as nominated by core paediatric residents.

Dr. Adrienne Davis – CanMEDS Award – Subspecialty Trainee

Clinical Awards

Dr. Nicole Coles – The Saunders Prize to a senior resident who has demonstrated excellence in clinical paediatrics.

Core Paediatrics

Dr. Kamini Ragurham and **Dr. Julia Sharp** (tie)

Junior Trainee – Basic Science

Patrick Sin-Chan

Senior Trainee-Basic Science

Dr. Maian Roifman

Senior Trainee-Clinical Science

Dr. Amanda Hauck and Dr. Melanie Penner (tie)

Oral Presentations

Amir, Achiya, Gastroenterology/Hepatology/Nutrition

Allergy and autoimmunity following solid organ transplantation – Prevalence, natural history and risk factors. A Amir, N Marcus, E Grunebaum, A Dipchand, D Hebert, V Ng, T Walters, Y Avitzur

Furlong, Kyla, Infectious Diseases

A comparison of secondary bacterial infections in children hospitalized with pandemic or seasonal A or B influenza in Canadian tertiary care centers. K Furlong, W Vaudry, D Moore, J Bettinger, S Halperin, D Scheifle, D Tran

Lee, Grace, Paediatric Medicine

Non-cow's milk consumption is associated with lower serum 25-hydroxyvitamin D in early childhood. GJ Lee, CS Birken, PC Parkin, G Lebovic, Y Chen, MR L'Abbe, JL Maguire

Raghuram, Kamini, Core Paediatrics

Direct reprogramming of mouse fibroblasts into airway epithelium. K Raghuram, A Wong, J Rossant

Roifman, Maian, Clinical & Metabolic Genetics

Novel alterations in placental DNA methylation associated with IUGR. M Roifman, S Choufani, S Drewlo, S Keating, J Kingdom, R Weksberg

Sun, Liqun, Cardiology

Feasibility of comprehensive hemodynamic assessment in the normal late gestation human fetus by phase contrast MR and T2 mapping. L Sun, M Al-Rujaib, J van Amerom, E Jaeggi, L Grosse Wortmann, S-J Yoo, CK Macgowan, M Seed

Poster Presentations

Abbott, Lesleigh, Haematology/Oncology

Accrual of adolescents and young adults with cancer to eligible clinical trials: a report from the National Cancer Institute of Canada Clinical Trials Group (NCIC-CTG). L Abbott, A Hay, C Willman, A Urton, J Pater, J Dancey, E Eisenhauer, L Seymour

Adamski, Jennifer, Haematology/Oncology

The impact of initial radiation in infants and the re-irradiation of recurrent disease on the survival of ependymoma patients at The Hospital for Sick Children, Toronto. J Adamski, M Taylor, U Tabori, A Huang, U Bartels, R Krishnatry, N Laperriere, C Hawkins, E Bouffet

Al Adba, Buthaina, Rheumatology

Epidemiology and biologic treatment patterns of systemic juvenile idiopathic arthritis in Ontario. B Al Adba, R Schneider, E Silverman

Al-Hashim, Aqeela, Neurology

Agenesis of corpus callosum: Clinical and neuroradiological evaluation. A Al-Hashim, D MacGregor, S Blaser, C Raybaud

Al Khattabi, Fadia, Paediatric Medicine

Retinoschisis and traumatic head injury in infants and children. F Al Khattabi, A Rizwan, S McIntyre, A Eils, AV Levin, M Shouldice

Alphonse, Martin, Rheumatology

Inositol 1,4,5-triphosphate 3-kinase C (ITPKC) regulates NLRP3 inflammasome activation in Kawasaki Disease (KD). M Alphonse, TT Duong, J Burns, RSM Yeung

Amid, Ali, Haematology/Oncology

Risk factors for early versus late Transcranial Doppler flow velocity conversion in patients with sickle cell anemia (SCA): Possible effect of functional spleen. A Amid, M Singh, A Ciccolini, S Behera, A Daneman, M Kirby-Allen

Ayed, Miriam, Neonatology

Outcome of infants with necrotising enterocolitis (NEC): The impact of laparotomy versus peritoneal drainage. M Ayed, P Shah, A Lodha, ED Skarsgard, SickKids Lee, AM Moore

Bahm, Allison, Endocrinology

Endocrine manifestations of hepatoblastoma.
A Bahm, J Wasserman, F Mahmud

Bakel, Leigh Anne, Paediatric Medicine

Pediatric hospital conditions: Is impact associated with the existence of clinical practice guidelines. LA Bakel, A Merglen, E Cohen, PC Parkin

Bakhsh, Shireen, Nephrology

Nephrotic syndrome associated with schimke immuno-osseous dysplasia (SIOD). S Bakhsh, D Hebert

Banihani, Rudaina, Developmental Paediatrics

Cognitive and neurobehavioural profile and its relation with genotype mutation in boys with Duchenne muscular dystrophy.
R Banihani, S Smile, G Yoon, M Mosleh, A Snider, L McAdam

Basak, Sanjukta, Endocrinology

A tale of two boys: An Atypical cause of pubertal precocity.
S Basak, A Lorenzo, M Koyle, R Shaikh, D Koltin, J Wasserman

Bigi, Sandra, Neurology

A new computerized tool detects subtle differences in information processing speed in children with MS. S Bigi, RA Marrie, C Till, EA Yeh, N Akbar, A Feinstein, B Banwell

Blichowski, Monica, Neurology

Girk2 channel function is necessary for infantile spasms-like seizures induced by GABA(B) receptor agonists. M Blichowski, A Shephard, L Shen, MA Cortez, O Carter Snead

Bola, Sundeep, Respiratory Medicine

Sleep disordered breathing in pediatric patients with functionally single ventricle. S Bola, S Dhanju, S Al-Saleh, R Amin, I Narang

Boelman, Cyrus, Neurology

Phenotype-genotype of a large Jeavons syndrome cohort.
C Boelman, L Brunga, B Minassian (POSTER 52)

Burghardt, Karolina, Gastroenterology/Hepatology/Nutrition

Critical appraisal of current implications for pediatric intestinal transplant and proposal of new listing criteria. K Burghardt, PW Wales, N de Silva, D Stephens, D Grant, Y Avitzur

Chacko, Anila, Infectious Diseases

Changes in morbidity and mortality between the pre-and post-combination antiretroviral therapy (cART) eras in HIV-infected children. A Chacko, M Science, C Arneson, G MacDougall, S Read, A Bitnun

Chanchlani, Rahul, Nephrology

Incidence of post-transplantation hyperglycemia and new-onset diabetes after transplant (NODAT) in pediatric solid organ transplant recipients. R Chanchlani, J Hyeon Choi, J Vasilevska-Ristovska, V Ng, A Dipchand, M Solomon, D Hebert, SJ Kim, RS Parekh

Chaudhry, Ayesha, Clinical and Metabolic Genetics

Phenotypic spectrum associated with PTCHD1 deletions and truncating mutations. A Chaudhry, A Noor, B Degagne, K Baker, CF Boerkoel, LA Bok, A Brady, D Chitayat, D Dymont, I Filges, B Helm, HT Hutchison, LJ Bone Jeng, F Laumonier, FL Raymond, W Roberts, R Rupps, CTRM Schrandner-Stumpel, DJ Stavropoulos, SJC Stevens, ERA Thomas, A Toutain, S Vergano, SW Scherer, JB Vincent, MT Carter

Cheng, Sylvia, Haematology/Oncology

Long term outcomes in children with intracranial germinoma: A single institution experience from 2000-2013. S Cheng, J-P Kilday, N Laperriere, J Drake, E Bouffet, U Bartels

Cifra, Barbara, Cardiology

Tissue Doppler Imaging echocardiographic reference values for left and right ventricle in children during exercise. B Cifra, A Dragulescu, M Mirkhani, C Slorach, C Manlihot, MK Friedberg, L Mertens

Coles, Nicole, Core Paediatrics

Abnormal glucose metabolism in adolescents with polycystic ovarian syndrome. N Coles, K Bremer, X Yan, S Kives, J Hamilton

Collins, Jovian, Core Paediatrics

Analysis of the hidden curriculum at the University of Toronto Paediatric program through trainee reflections.
J Collins, A Atkinson, M Martimianakis, A Matlow

Dagher, Marc, Gastroenterology/Hepatology/Nutrition

Overweight, central obesity and cardiometabolic risk factors in pediatric liver transplant recipients. M Dagher, VL Ng, A Carpenter, S Rankin, M De Angelis, Y Avitzur, M Mouzaki

D'Alessandro, Lisa, Cardiology

Parental perceptions towards non-invasive prenatal genetic testing in high-risk pregnancies. L D'Alessandro, V Thakur, M Safi, N Dutil, E Jaeggi, S Mital

Dang, Frances, Gastroenterology/Hepatology/Nutrition

miR-142-3p directly regulates autophagy-dependent gene ATG16L1 in Crohn's Disease. F Dang, D Rodrigues, M Sibony, NL Jones

Davis, Adrienne, Emergency Medicine

The big score & prediction of mortality in pediatric trauma. A Davis, F Razik, T Malik, A Pizzolato, P Wales, D Stephens, S Schuh

Delano, Kaitlyn, Clinical Pharmacology and Toxicology

Rates of fetal polydrug exposures in methadone-maintained pregnancies from a high-risk population. J Gareri, G Koren

De Souza, Bradley, Core Paediatrics

Gastric flora in gastrostomy fed children with neurological impairment on acid suppression medication. B De Souza, E Cohen, S Mahant, S Richardson, Y Avitzur, A Rapoport

Downie, Malorie, Core Paediatrics

Cardiac outcome and second-line treatment in patients with Kawasaki Disease non-responsive to IVIG. M Downie, D Manlihot, T Collins, B McCrindle

Eng, Simon, Rheumatology

The biological basis of childhood arthritis.
S Eng, Q Morris, RSM Yeung

Evans, Andrea, Core Paediatrics

The cost and impact on the Interim Federal Health Program cuts on child refugees at SickKids. A Evans, A Caudarella, S Ratnapalan, K Chan

Fujii, Hisaki, Haematology/Oncology

Establishment of humanized chronic graft-versus-host disease mice model. H Fujii, Z Luo, HJ Kim, X Wang, S Newbigging, A Keating, M Egeler

Gerstein, Maya, Rheumatology

Predicting macrophage activation syndrome in pediatric systemic lupus erythematosus patients at diagnosis.

M Gerstein, BM Feldman, S Sukedho, D Levy, S Benseler, L Ng, M Abdelhaleem, ED Silverman, LT Hiraki

Ghemlas, Ibrahim, Haematology/Oncology

A novel comprehensive next generation sequencing (NGS) gene panel markedly improves the diagnostic process of complex inherited bone marrow failure syndromes (IBMFSs).

I Ghemlas, H Li, B Zlateska, S Dhanraj, R Klaassen, CV Fernandez, R Yanofsky, J Wu, Y Pastore, M Silva, J Lipton, J Brossard, B Michon, S Abish, M Steele, R Sinha, M Belletrutti, V Breakey, L Jardine, L Goodyear, A Wagner, M Cada, Y Dror

Grattan, Michael, Cardiology

Bicuspid aortic valve registry for The Hospital for Sick Children.

M Grattan, M Petrovic, L Mertens

Grotenhuis, Heynric, Cardiology

Right ventricular performance after Norwood and hybrid palliation in patients with hypoplastic left heart syndrome.

B Ruijsink, D Chetan, A Dragulescu, MK Friedberg, Y Kotani, CA Caldarone, O Honjo, LL Mertens

Guo, Ting, Neurology

Hippocampal growth in preterm neonates: role of postnatal steroids.

T Guo, JL Winterburn, J Pipitone, MM Chakravarty, EG Duerden, V Chau, KJ Poskitt, RE Grunau, A Synnes, SP Miller

Hasija, Rachana, Rheumatology

Neoplasms in pediatric patients with rheumatic diseases exposed to biologics-the SickKids experience.

R Hasija, E Silverman, S Cho, L Fung, S Benseler, B Cameron, B Feldman, R Laxer, DM Levy, R Schneider, L Spiegel, RSM Yeung, M Anderson, A Bell-Peter, H Convery, K Queffelec, M Saunders, S Tse

Hauck, Amanda, Cardiology

Quantitative assessment of right ventricular function in normal children using novel echocardiographic views.

A Hauck, B Landeck, L Mertens

Heale, Liane, Core Paediatrics

Objectively measured physical activity of infants, toddlers, and preschool-aged children using accelerometry.

L Heale, DM Borkhoff, JL Maguire, PC Parkin, CS Birken

Ip, Angie, Developmental Paediatrics

Factors influencing autism spectrum disorder screening by community paediatricians.

A Ip, S Smile

Jean-St-Michel, Emilie, Cardiology

Digital thermal monitoring: a novel technology to assess vascular function in young children.

E Jean-St-Michel, C Slorach, W Hui, C Manhliot, AH Garfield, E Jaeggi, AN Redington

Jones, Kevin, Neurology

Vigabatrin verses prenisolone in the first line treatment of infantile spasms.

K Jones, C Go, J Boyd, B McCoy, A Ochi, O Carter Snead

Jougheh Doust, Soghra, Clinical and Metabolic Genetics

Whole exome sequencing in two siblings with developmental regression and hypermetabolism.

S Joucheh Doust, J Clark, B Robinson, J Cameron, R Cohn

Kaiser, Sunitha, Paediatric Medicine

A cross-jurisdictional comparison of quality of care for children with diabetes mellitus in Ontario & California.

S Kaiser, E Cohen, V Sundaram, LM Sanders, A Guttmann

Katz-Lavigne, Mikael, Paediatric Medicine

Priority setting in pediatric preventive care research.

M Katz-Lavigne, A Laupacis, C Birken, J Maguire, S Straus

Keir, Amy, Neonatology

Late RBC transfusions and outcomes of preterm infants <30 weeks gestation age: A nested cohort study.

A Keir, K Aziz, DD McMillan, L Monterrosa, CR Ojah, SickKids Lee, PS Shah

Khan, Sarah, Infectious Diseases

Case of non-responding osteomyelitis.

S Khan, I Kitai

Kherani, Tamizan, Respiratory Medicine

Surveillance bronchoscopy demonstrates that subclinical bleeding is common in children with idiopathic diffuse alveolar hemorrhage syndromes.

T Kherani, C Yang, E Cutz, S Dell

Khoury, Michael, Core Paediatrics

“What is a resident?” A comparison of parental knowledge and preferences and resident practice in a paediatric emergency department.

M Khoury, A Bokhari, B Ismail, T Principi, Z Bismilla

Kim, Celine, Emergency Medicine

Developing and evaluating ethics education in the ‘health for peace’ project: Collaborative learning potential?

R Greenberg, C Kim, J Hellman, D Scolnik, R Zlotnik Shaul

Kinlin, Laura, Core Paediatrics

Understanding the pediatric medical literature:

Which statistical tests should residents know?

L Kitlin, FA Alghamdi, WR Alamri, JD Thull-Freedman

Kobayashi, Tohru, Clinical Pharmacology and Toxicology

Risks of congenital malformations in offspring exposed to valproic acid in utero: A systematic review and meta-analysis.

T Kobayashi, M Tanoshima, R Tanoshima, S Ito

Kordy, Faisal, Infectious Diseases

Utility of gastric aspirates for diagnosing tuberculosis in children in a low prevalent area: Predictors of positive cultures and significance of non-tuberculous mycobacteria.

SE Richardson, D Stephens, R Lam, F Jamieson, I Kitai

Kwon, Sarah, Respiratory Medicine

Airway inflammation in congenital diaphragmatic hernia.

S Kwon, D Soares, A Zweerink, M Chiang, P Chiu, TJ Moraes

Ladha, Alysha, Developmental Paediatrics

Vision impairment in pediatric acquired brain injury.

A Ladha, JR Buncic, RM Hung (POSTER 40)

Lam, Jessica, Clinical Pharmacology and Toxicology

P-glycoprotein expression in the developing human blood-brain barrier.

J Lam, S Baello, M Iqbal, L Kelly, P Shannon, SG Matthews, D Chitayat, G Koren

Leibson, Tom, Clinical Pharmacology and Toxicology

Infant safety with atypical antipsychotic therapy in breastfeeding.

T Leibson, V Yini, G Koren

Leon-Cheon, John, Clinical Pharmacology and Toxicology

Interaction between riboflavin and BCRP-mediated drug transport in the mammary gland.

J Leon-Cheon, L Dedina, M Yang, P Harper, S Ito

Levy, Issac, Endocrinology

The impact of the treatment of hypoparathyroidism on renal function in children: long term retrospective follow up study.

I Levy, J Harrington, E Sochett

Li, Mingyuan, Gastroenterology/Hepatology/Nutrition

The amino acid L-arginine rescues airway surface liquid production in cystic fibrosis (CF) airway epithelium via the transporter SLC6A14. M Li, W Ip, S Ahmadi, A Llyod-Kuzik, C Bear, T Gonska

Louis, Deepak, Neonatology

Predictors of failure of second course indomethacin in preterm neonates. L Deepak, XY Ye, P McNamara, A Jain

Loverdos, Ines, Gastroenterology/Hepatology/Nutrition

Pancreatitis panniculitis and polyarthritis (PPP) syndrome.

I Loverdos, S Shekherdimian, M Swan, A Al-Rasheed, J Langer, R Schneider, J Fish, ME Lowe, VP Singh, B Ngan, K Adeli, T Gonska

Lurz, Eberhard, Gastroenterology/Hepatology/Nutrition

Old wine in new bottles-fibrosing versus autoimmune pancreatitis in children. E Lurz, L Hiraki, S Tse, M Marcon, T Gonska

McLaren, Anya & Smith, Jennifer, Core Paediatrics

Quality of hospital care for children in two regional hospitals in Guyana: An observational assessment. A McLaren & J Smith, A Hunter, J Johnstone, N Singh

McLean, Lianne, Emergency Medicine

Point-of-care ultrasound-guided axillary nerve block versus procedural sedation for the reduction of forearm fractures in the pediatric Emergency Department. L McLean, J Fischer, M Bhatt

Merglen, Arnaud, Paediatric Medicine

Timing of voiding cystourethrogram in the investigation of urinary tract infections in children: A systematic review and meta-analysis. A Merglen, M Katz-Lavigne, T Agoritsas, S Asner, E Uleryk, J Friedman, P Parkin, E Cohen, S Mahant

Mishra, Navin, Neurology

Curing Lafora disease by reducing glycogen synthesis. N Mishra, B Minassian

More, Kiran, Neonatology

Changes in visceral blood flow velocities in neonates with hypoxic ischemic encephalopathy during whole body hypothermia and after rewarming. K More, P Sakhuja, J Ting, J Seth, A Lapointe, PS McNamara, AM Moore

Mukerji, Amit, Neonatology

Nasal intermittent positive pressure ventilation (NIPPV) in newborns: Do the lungs see what is delivered to the nose? A Mukerji, J Belik

Neuman, Gal, Clinical Pharmacology and Toxicology

Ceftriaxone-induced immune haemolytic anemia: Systematic review and proposed screening strategy. G Neuman, S Boodhan, I Wurman, G Koren, A Bitnun, M Kirby-Allen, S Ito

Nita, Dragos, Neurology

EEG patterns associated with anti-NMDA receptor encephalitis in children. D Nita, A Ochi, H Otsubo, C Hahn, C Go

Noone, Damien, Nephrology

Blood outgrowth endothelial cells (BOECS) as a model to study atypical hemolytic uremic syndrome. D Noone, M Riedl, L Lu, Y Quan, F Pluthero, W Kahr, C Licht

Nugent, Zoe, Respiratory Medicine

Polysomnography findings in obese children <8 years of age. Z Nugent, R Amin, CS Birken, S Al-Saleh, D Lai, Z Lu, I Narang

Nurmohamed, Laila, Paediatric Medicine

Emotional impact of the anogenital examination in child sexual abuse: A systematic review of qualitative studies. L Nurmohamed S Madigan, M Shouldice

Okanari, Kazuo, Neurology

Characteristics of heart rate variability in children with postictal generalized EEG suppression. K Okanari, H Otsubo, E Kouzmitcheva, A Ochi, S Sakuma, M Nakajima, S Baba, Y Sato, CY Go, DA Nita, EJ Donner

Omand, Jessica, Paediatric Medicine

Validation of vitamin D dietary intake screening questionnaire in young children. J Omand, PB Darling, DL O'Connor, PC Parkin, CS Birken, JG Lee, KE Thorpe, JL Maguire

Parsaud, Leon, Rheumatology

The role of CD40L and CD40 in the pathogenesis of Kawasaki Disease. L Parsaud, RSM Yeung

Patrick, Katharine, Haematology/Oncology

Major ABO incompatible bone marrow transplantation in children: Determining what residual volume of donor red cells can safely be infused following red cell depletion. K Patrick, W Lau, A Gassas, E McDougall, M Ali, S Courtney, M Egeler, T Schechter Finklestein

Penner, Melanie, Developmental Paediatrics

Cost-effectiveness of adding pre-diagnosis Autism Spectrum Disorder treatment to the Ontario status quo. M Penner, M Rayar, N Bashir, R Hancock-Howard, P Coyte

Porayette, Prashob, Cardiology

MRI shows a potential cause of in utero pulmonary vascular disease in transposition of the great arteries. P Porayette, JFP van Amerom, S-J Yoo, E Jaeggi, CK Macgowan, M Seed

Rayment, Jonathan, Core Paediatrics

Genotypic and clinical features of culture-positive paediatric tuberculosis in Toronto, Canada between 2002-2012. J Rayment, JL Guthrie, B Lee, M Whelan, K Lam, FB Jamieson, I Kitai

Rozenblyum, Evelyn, Rheumatology

Anti-Ro and anti-La antibodies in the general pregnant population. E Rozenblyum, S Sukhdeo, E Jaeggi, L Hornberger, P Wyatt, C Laskin, ED Silverman

Schwartz, Kevin, Gastroenterology/Hepatology/Nutrition

Palivizumab for use in infants with cystic fibrosis: A decision analysis model. K Schwartz, A McGirr, B Sander, M Solomon, U Allen

Sharma, Neha, Respiratory Medicine

Inquilinus limosus in pediatric cystic fibrosis patients. N Sharpe, V Waters, M Solomon

Shah, Jyotsna, Neonatology

Neonatal outcomes of preterm twins by mode and presentation at birth. J Shah, T Hunter, P Shah, S Shivananda, A Synnes, K Murphy

Sharp, Julia, Core Paediatrics

Temperament is associated with free play in young children. J Sharp, J Maguire, S Carsley, A Kawsari, G Lebovic, Y Chen, PC Parkin, CS Birken

Shulman, Rayzel, Endocrinology

Physicians' perceptions of the value of insulin pump therapy for pediatric type 1 diabetes. R Shulman, A Guttmann, D Daneman, F Miller

Siapno, Lia Abigail, Developmental Paediatrics

Transition awareness and planning among youth with complex autism spectrum disorder. LS Siapno, E Anagnostou, S Smile

Simone, Laura, Emergency Medicine

Sensitivity of pelvic radiographs in identifying high risk pelvic fractures in pediatric blunt trauma patients. L Simone, M Haasz, J Stimec, S Beno, U Narayanan, D Stephens, S Schuh

Sin-Chan, Patrick, Haematology/Oncology

Delineating transforming mechanisms and therapeutic targets of the C19MC OncoMiR cluster. P Sin-Chan, M Lu, C Kleinman, T Spence, D Picard, KC Ho, J Chan, C Hawkins, J Mejewski, N Jabado, P Dirks, A Huang

Smith, Ryan, Core Paediatrics

Factors predicting car seat test (CST) failure in late preterm infants (LPI): A retrospective chart review. R Smith, A Mohamed, J Young, A Jefferies, V Shah

Stevenson, Rebeka, Rheumatology

A case of severe endobronchial stenosis in a patient with vasculitis. R Stevenson, R Yeung, S Tse

Tanoshima, Reo, Clinical Pharmacology and Toxicology

Nrf2-Keap1 pathway does not have an important role in cisplatin resistance in neuroblastoma. R Tanoshima, M Yang, P Dalvi, AML Wu, K, Matsuda, L Zhang, H Fujii, S Baruchel, PA Harper, S Ito

Tashkandi, Mariam, Neurology

The frequency of electroencephalographic abnormalities in relatives of patients with epilepsy: A systematic review and meta-analysis. M Tashkandi, D Ba-Armah, B Minassian

Tibussek, Daniel, Neurology

Late-onset group B streptococcal associated cerebrovascular disease in infancy. D Tibussek, I Yau, R Askalan

Tole, Soumitra, Core Paediatrics

Neonatal parechovirus central nervous system infections. S Tole, S Richardson, H Whyte, L Ly, S Blaser, A Bitnun

Tran, Thai Hoa, Haematology/Oncology

Second bacteremia during antibiotic treatment in children with acute myeloid leukemia: A report from the Canadian infections in AML research group. TH Tran, L Sung et al.

Vandermorris, Ashley, Adolescent Medicine

Addressing substance use in kids (ASickKids) 2: An extended study of drug-related emergencies at Sickkids over 1 year. A Vandermorris, C Korenblum, K Leslie

Villani, Anita, Haematology/Oncology

Investigating PIN1 as a genetic modifier in Li-Fraumeni syndrome. A Villani, A Novokmet, D Malk

Walsh, Catharine, Gastroenterology/Hepatology/Nutrition

Gastrointestinal endoscopy competency assessment tool for pediatric colonoscopy: (GIECATKIDS): An international multicenter validation study. C Walsh, SC Ling, P Mamula, JR Lightdale, JJ Yu, TD Walters, H Carnahan

Weerdenburg, Kristin, Emergency Medicine

Parental knowledge of concussion. K Weerdenburg, S Schneeweiss, E Koo, K Boutis

Weidman, Danielle, Core Paediatrics

Two cases and a review of Streptococcus pyogenes endocarditis in children. D Weidman, H Al-Hashami, S Morris

Weingarten, Laura, Emergency Medicine

Caregiver satisfaction with children's pain management in the Emergency Department. L Weingarten, J Kircher, AS Newton, KD Dong, RJ Rosychuk, SJ Curtis, S Ali

Wilejto, Marta, Haematology/Oncology

Outcomes of young children with CNS positive acute lymphoblastic leukemia treated with and without cranial radiotherapy: A single-centre experience. M Wilejto, S Gupta, G Di Giuseppe, B Spiegler, J Hitzler, O Abla

Wiley, Joseph, Core Paediatrics

The implementation of a night float system into a large Canadian Paediatric training program: Impact on resident education. J Wiley, M Khoury, A Atkinson, S Talarico, Z Bismilla

Wu, Alex, Clinical Pharmacology and Toxicology

Regulation of multidrug transporter (BCRP/ABCG2) expression in the mammary gland during lactation. A Wu, P Dalvi, M Yang, A, Turinsky, K Wang, D Butcher, SE Egan, R Weksberg, M Brudno, PA Harper, S Ito

Zubairi, Mohammad, Developmental Paediatrics

Building a simulation: a new way to learn. M Zubairi, S Lindsay, K Parker, A Kawamura

Zhukova, Nataliya, Haematology/Oncology

Clinical and molecular determinants of long-term survival in children with Low Grade Glioma; A population based study. N Zhukova, J Pole, M Mistry, I Fried, R Krishnatry, U Bartels, A Huang, N Laperriere, P Dirks, S Zelcer, M Sylva, D Johnston, K Scheinemann, J An, N Alon, P Nathan, G Greenberg, E Bouffet, D Malkin, C Hawkins, U Tabori



paediatric house staff

Paediatric House Staff 2013-2014

CHIEF RESIDENTS-PGY4s

Dr. Michael Khoury
Dr. Joseph Wiley

ASSOCIATE CHIEF RESIDENTS-PGY4s

Dr. Joan Abohweyere
Dr. Kate Amiel
Dr. Justine Cohen-Silver
Dr. Anne Fuller
Dr. Lauren Kitney
Dr. Sonia Menard
Dr. Alexandra Pennal
Dr. Kate Runkle

THIRD YEAR RESIDENTS – PGY3

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Dr. Natalie Chan
Dr. Nicole Coles
Dr. Jennifer Das
Dr. Jenna Doig
Dr. Andrea Evans
Dr. Jennifer Galle
Dr. Jessica Gantz
Dr. Claudia Garcia-Gelvez
Dr. Michael Hill
Dr. Andrea Human
Dr. Joanna Humphreys
Dr. Rebecca Levy
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Dr. Anya McLaren
Dr. Rachel Markin
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Dr. Luis Murguia
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Dr. Jonathan Rayment
Dr. Daniel Rosenfield
Dr. Julia Sharp
Dr. Jennifer Smith
Dr. Margaret Wolfe-Wylie
Dr. Elizabeth Yeboah
Dr. Stephen Zborovski
Dr. Kim Zhou

SECOND YEAR RESIDENTS – PGY2

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Dr. Jovian Collins
Dr. Mallory Downie
Dr. Madeline Drake
Dr. Liane Heale
Dr. Andrew Helmers
Dr. Samantha Irwin (Neuro)
Dr. Elizabeth Kouzmitcheva (Neuro)
Dr. Bryan Li
Dr. Lillian Lim
Dr. Ursula Madej
Dr. Amber Makino
Dr. Jessica Malach
Dr. Kamini Raghuram
Dr. Fathima Razik
Dr. Holden Sheffield
Dr. Ryan Smith
Dr. Shazeen Suleman
Dr. Jennifer Tam
Dr. Soumitra Tole
Dr. Danielle Weidman
Dr. Stacy Zahanova

FIRST YEAR RESIDENTS – PGY1

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Dr. Mohammed AlOsaimi
Dr. Muhammad Asim
Dr. Rebecca Barmherzig (Neuro)
Dr. Bradley DeSouza
Dr. Carolyn Freedman
Dr. Sindu Govindapillai
Dr. Laura Kinlin
Dr. Piya Lahiry
Dr. Carol Lam
Dr. Joey Latino
Dr. Elliot Lavi
Dr. Thomas McLaughlin
Dr. Reena Pabari
Dr. Rebecca Rockman
Dr. Ishita Siddiq (Neuro)
Dr. Devin Singh
Dr. Julia Sorbara
Dr. Melanie Steele
Dr. Janaki Vallipuram
Dr. Luke Zheng
Dr. Brie Yama



grand rounds

Grand Rounds

Grand Rounds, weekly sessions dedicated to presenting state-of-the-art knowledge in topics relevant to child health from multiple perspectives, is the flagship academic activity for the Department of Paediatrics.

The Grand Rounds Committee for the academic year 2013-2014 was chaired by Ron Laxer and included Eyal Cohen, Elizabeth Donner, Marvin Gans, Michael Khoury, Rayfel Schneider, Lillian Sung, Neil Sweezey and Joseph Wiley.

The summer Grand Rounds series, coordinated by the chief residents, allows senior trainees and subspecialty fellows to provide updates within specific specialties and sub-specialties. The sessions entitled “Daneman and Friends” continue to be a highlight of the program. For these Rounds, our Department Chair invites several staff to address a specific theme. As in past years, the Chief Resident’s Rounds, entitled “Cases from the Ward” remain extremely popular where two to three senior paediatric residents present unique cases that they have come across.

Professors’ Rounds are delivered by individuals who have been promoted to full professor in the Department of Paediatrics in the previous year. This past year Professors’ Rounds were covered by Drs. Isaac Odame, Anne Dipchand, Berge Minassian and Luc Mertens. Named lectureships continue to be an important component of the Grand Rounds program. This past year, Dr. Stephen Lye, Executive Director, Fraser Mustard Institute for Human Development OISE, University of Toronto, delivered the Harry Bain Lecture. The Robert H. A. Haslam Lecture was given by Dr. Dr. Josep Dalmau, University of Barcelona, Adjunct Professor Neurology, University of Pennsylvania, and Dr. Ajay Vora from the University of Sheffield, UK gave the Daniel Burton Leukemia Lecture. The Andrew Sass-Kortsak Award Lecture awards a senior trainee in the Research institute. This year’s winner,

Dr. Kyoung-Han Kim, discussed his work around uncovering the roles of lrx genes from heart disease to obesity. Dr. Marilyn Manco-Johnson, Director, Hemophilia and Thrombosis Centre from the University of Colorado gave the Laski Lecture describing her work on pediatric thrombosis. The Jacob’s Ladder Lecturer was Dr. Cornelis Jakobs of VU Medical Center, Amsterdam. Dr. Doug Diekema, of the Treuman Katz Center for Pediatric Bioethics at Seattle Children’s Research Institute presented the Christine Harrison Lecture on Bioethics. Dr. Richard Auten from Duke University gave the Barry Smith Lecture discussing air pollution during pregnancy.

Dr. Brian Hodges from University of Toronto gave Grand Rounds as part of this year’s Medical Education Day discussing teaching medicine in a globalized world.

We were fortunate to be able to host many visitors to Grand Rounds including (in addition to those above) our new President and CEO Michael Apkon, Deborah Christie from University College Hospital-UK, Scott Snapper from Boston Children’s Hospital, Neil Shear from Sunnybrook, Susan Sawyer from the University of Melbourne, Alexei Grom from Cincinnati Children’s Hospital, Terry Klassen from the Manitoba Institute of Child Health, Joseph Neu from the University of Florida and Sarah Lawrence of the Children’s Hospital of Eastern Ontario.

Once again, the Department of Paediatrics Grand Rounds Committee acknowledges the tremendous help and support of a number of individuals who do the vast majority of the behind-the-scenes work. In particular we want to thank Amoye Henry for her excellent project coordination support, and Frank Ferrari and Sam Mendolia for their audio-visual expertise.

Jul 3	Dr. Kate Nelson Fellow, Rotman/Academic Gen Paeds Paediatric Medicine Division "Betting on life and death: How patients and their providers understand risk"
Jul 10	Drs. Charles Larson and Intikhab Zafurallah, Critical Care Unit "A Critical Tale"
Jul 17	Drs. Sibylle Tschumi and Wesley Hayes Division of Nephrology "Bubble Makers and Trouble Makers"
Jul 24	Drs. Asaph Rolnitsky, Amit Mukerji, Dalal Abdelgadir and Jaideep Kanungo Division of Neonatology "Caring for the late preterm infant: What a paediatrician needs to know"
Jul 31	Dr. Robert E. Black Chair, Department of International Health, Bloomberg School of Public Health, Johns Hopkins University, Baltimore Dr. Zulfiqar A. Bhutta Robert Harding Chair in Global Child Health and Co-Director of the SickKids Centre for Global Child Health; and Noordin Noormadhomed Shariff Professor & Founding Chair, Division of Women and Child Health, the Aga Khan University, Karachi Dr. Mickey Chopra Chief of Health, UNICEF, New York "Addressing Two Million Annual Deaths Due to Pneumonia and Diarrhea" Lancet Series on Childhood Pneumonia and Diarrhea
Aug 7	Drs. Allison Bahm and Jenny Harrington Pediatric Endocrinology "The Sweet LowDown: Update on Hypoglycemia"
Aug 14	Drs. Dax Rumsey, Rebeka Stevenson and Rachana Hasija Division of Rheumatology "The Wolf on the Ward"
Aug 21	Drs. Ripudaman Minhas, Mohammad Zubairi, and Melanie Penner Developmental Paediatrics "Practical Management of Autism Spectrum Disorder for the General Paediatrician; or, #autismpearls"
Aug 28	Drs. Andrea Guerin, Raymond Kim, Soghra Jougheh Doust and Sharon Moalem Division of Clinical and Metabolic Genetics "From FISH to Genome, putting Genetics into clinical practice for the Paediatrician"

Sep 4	Denis Daneman and Friends: Dr. David Cherney, UHN, CDA Dr. Ronni Cohn and Dr. Sarah Bowdin Clinical and Metabolic Genetics "Oh, give me a 'Ome Where the Biome and Genome Roam"
Sep 11	Dr. Stephen Lye Executive Director, Fraser Mustard Institute for Human Development OISE, University of Toronto Harry Bain Lecture: "Developmental Trajectories to Health, Learning and Social Functioning: The Importance of the First 2000 Days of Life"
Sep 18	Dr. Neil Shear Dermatology, SunnybrookDurham, NC "DRESS: When is a drug rash not a rash?"
Sep 25	Dr. Cornelis Jakobs VU Medical Center, Amsterdam Jacob's Ladder: "Inborn Errors of Metabolism (Human Knock Out Models) as experiments of Nature: What can we learn"
Oct 2	Dr. David Sherry Rheumatology, Children's Hospital of Philadelphia "When the Pain does not Stop– Amplified Pain in Childhood"
Oct 9	Dr. Marilyn Manco-Johnson Director, Hemophilia and ThrombosisCentre, University of Colorado Laski Lecture: "Pediatric Thrombosis: Where are the new frontiers?"
Oct 16	Dr. Joel Frader Professor of Pediatrics and Medical Humanities & Bioethics, Feinberg School of Medicine, Northwestern University, Chicago Palliative Care: "Parents and End-of-Life Decisions in the PICU: Empirical Evidence, Professional Perplexity"
Oct 23	Dr. Norm Spack Endocrinology, Childrens Hospital, Boston "The Gender Management (GeMS) Service, Opened in '07 for Evaluation & Medical Rx of Transgender Adolescents: What the Patients have Taught Us"
Oct 30	Dr. Sharon Straus University of Toronto "Evidence for evidence implementation"
Nov 6	Dr. Douglas Diekema Treuman Katz Center for Pediatric Bioethics, Seattle Children's Hospital Christine Harrison Bioethics Lecture: "Ashley Revisited: Growth Attenuation and Children with Severe Developmental Disabilities"

Nov 13	Drs Sonia Menard, Kate Amiel and Alex Pennal Core Pediatrics training program, Department of Pediatrics, University of Toronto "Cases from the Ward"
Nov 20	Dr. Arvin Garg Fellowship Director, Dept Pediatrics Boston Medical Centre Resident Advocacy: "Addressing the Social Determinants of Health at Pediatric Visits: Lessons from the U.S. Experience."
Nov 27	Daneman and Friends Dr. Melinda Solomon, Resp Med: Melanie Kirby, Hematology: Ari Bitnun, Infectious Disease 'Transmutation of Disease: Cystic Fibrosis Thalassemia HIV/AIDS"
Dec 4	Dr. Pablo J. Sanchez, M.D. Professor of Pediatrics The Ohio State University-Nationwide Children's Hospital Center for Perinatal Research "Congenital CMV Infection: Progress and Remaining Challenges!"
Dec 11	Dr. Peter C. Laussen, MB,BS.,FCICM Chief, Department of Critical Care Medicine SickKids "Modifiable Risk in Critical Care: Seeing is Believing"
Dec 18	Residents and Fellows – Holiday Rounds
Jan 8	Dr. Isaac Odame, MB ChB, MRCP(UK), FRCPath, FRCPC Alexandra Yeo Chair in Haematology Research Professor and Director, Division of Haematology Departments of Medicine and Paediatrics, University of Toronto Staff Physician, Division of Haematology/Oncology and Centre for Global Child Health, Medical Director, The Global Sickle Cell Disease Network The Hospital for Sick Children "Sickle Cell Disease: A Global Disease Needing Global Solutions"
Jan 15	Dr. Anne I. Dipchand MD Professor of Paediatrics, University of Toronto Head, Heart Transplant Program, SickKids "High risk paediatric heart transplantation: When is too much too much??"
Jan 22	Paediatric Residents: Joan Abohweyere, Lauren Kitney, Kate Runkle "Cases from the Ward"

Jan 29	Dr. Luc Mertens MD, PhD Professor of Paediatrics, University of Toronto Section Head, Echocardiography, SickKids "Looking into the cardiac muscle- of stress and strains and how it matters for pediatric disease"
Feb 5	Dr. Berge A. Minassian, MD CM, FRCP(C) U of T Michael Bahen Chair in Epilepsy Research- Professor of Paediatric Neurology, U of T Senior Scientist, Dept of Genetics & Genome Biology The Hospital for Sick Children Research Institute "Lafora disease-From Genes to Therapy"
Feb 12	"Lafora disease-From Genes to Therapy" Associate Professor of Pediatrics, University of Ottawa: Pediatric Endocrinologist, Children's Hospital of Eastern Ontario "CEG extension of weight on WHO growth charts: Why bother?"
Feb 19	Dr. Susan M. Sawyer MBBS MD FRACP FSAHM Director, Centre for Adolescent Health, Royal Children's Hospital; Chair of Adolescent Health, Dept of Pediatrics, The University of Melbourne; Associate Dean (International), Faculty of Medicine, Dentistry, Health Sciences, The University of Melbourne; and Researcher, Murdoch Children's Research Institute "How adolescent friendly is your hospital?"
Feb 26	Drs. Michael Khoury, Joseph Willey Paediatric Residents "Cases from the Ward"
Mar 5	Dr. Brian Hodges MD, PhD, FRCPC Vice-President Education, UHN Richard and Elizabeth Currie Chair in Health Professions Education Research Scientist, Wilson Centre for Research in Education Professor, Department of Psychiatry, Senior Fellow, Massey College, University of Toronto, University Health Network Medical Education Day: "Teaching medicine in a globalized world: Culture, ethics and education"
Mar 12	March Break – No Rounds
Mar 19	Dr. Michael Apkon, MD, PhD, MBA President and CEO The Hospital for Sick Children "An American's thoughts on pediatric care in Canada"
Mar 26	Dr. Richard Auten Professor of Pediatrics, Neonatology, Duke University, Durham, NC Barry Smith Lecture: "Air pollution during pregnancy: bad for the lung, bad for the brain of babies and children"

Apr 2	Dr. Carolyn Beck, MD, MSc, FRCPC Director of In-patient Unit, Paediatric Medicine, Assistant Professor; University of Toronto, The Hospital for Sick Children Dr. Gregory Wilson, MD, MSc, FRCPC Pathologist, Paediatric Laboratory Medicine Professor, Laboratory Medicine and Pathobiology, University of Toronto The Hospital for Sick Children “Clinical pathology conference: Teenager with Sickle Cell Disease presenting with Fever and Increasing Pain”
Apr 9	Dr. Alexei Grom, MD Professor of Pediatrics, College of Medicine, University of Cincinnati, and Attending Physician, Cincinnati Children’s Hospital Medical Center Abe shore lecture: “Macrophage Activation Syndrome in Rheumatology Pathophysiologic Overlap with Hemophagocytic Lymphohistiocytosis”
Apr 16	Dr. Terry Klassen, MD, MSc, FRCPC Director of Research at the Manitoba Institute of Child Health “The developmental trajectory of clinical evidence: From RCT to living systematic review”
Apr 23	Dr. Josep Dalmau, MD, PhD Research Professor ICREA-IDIBAPS, Service of Neurology, Hospital Clinic, University of Barcelona Adjunct Professor Neurology, University of Pennsylvania Robert Haslam lecture: “Autoimmune encephalitis: from symptom to synapse”
Apr 30	Dr. Deborah Christie, PhD DipClinPsych, FSAHM Adolescent Psychology, University College Hospital, United Kingdom (TELECAST) Therapeutic modalities that can be used in the office with adolescents

May 7	Dr. Ajay Vora, MD, FRCPC, FRCPATH Professor of Paediatric Haematology, University of Sheffield Consultant Paediatric Haematologist, Sheffield Children’s Hospital NHS Trust, Sheffield, UK Director, Trent Regional Paediatric Transplant Service Daniel Burton Lecture: “Beyond cure: Should toxicity be a primary end-point in childhood ALL therapy?”
May 14	Dr. Scott B. Snapper, MD, PhD Wolpew Family Chair in IBD Treatment and Research Director, Inflammatory Bowel Disease Center Gastroenterology/Nutrition Division Boston Children’s Hospital “Gene Discovery in Young Children With Inflammatory Bowel Disease: Insights Into Pathogenesis And Definitive Therapies”
May 21	Dr. Gideon Koren, MD, FRCPC Director, Motherisk Programs Clinical Pharmacology and Toxicology Research Institute, Senior Scientist, Child Health Evaluative Sciences University of Toronto, Professor Paediatrics The Hospital for Sick Children “Prozac Baby: 25 Years of Motherisk Research into SSRIs and Alcohol in Pregnancy”
May 28	Paediatrics research day – No Rounds
Jun 4	Department of Paediatrics Awards Day Awards Ceremony
Jun 11	Dr. Josef Neu, M.D. Professor, Department of Pediatrics Division of Neonatology University of Florida College of Medicine “Development of Our “Second Genome”: Implications for Health and Disease”
Jun 18	Dr. Kyoung-Han Kim Program in Developmental & Stem Cell Biology Hospital for Sick Children Sass Kortsak lecture: “Uncovering the roles of lrx genes from heart disease to obesity”
Jun 25	Canadian Paediatrics Society Meeting – No Rounds

Medical Education Training and Scholarships Overview

This report serves to recognize the excellence and dedication of our faculty teachers, educators and education leaders and the many ways they support the development and training of aspiring physicians and paediatricians. It celebrates their achievements and outlines promising new directions for research, innovation, teaching and development in medical education.

This year we highlight two important summer programs offered by our Undergraduate Education program.

As part of an overarching strategy to provide integrated learning opportunities for trainees at all levels, our undergraduate program, through the generous sponsorship of our Chair, Dr. Denis Daneman, has created two summer studentships, focused on highlighting the importance of the field of social paediatrics (SPRESS) and the importance of basic and clinical research in paediatric medicine (PERCS). In both programs, faculty receive a grant or matched funding to support the salary of a medical student for 8-12 weeks. The programs offer medical students an immersion in academic paediatrics. Our evaluations from the past three years the programs have been offered document that students develop research skills and an appreciation of a scientific area relevant to child health, as well as an understanding of how research findings relate to clinical practice more broadly through clinical shadowing experiences. This year’s funded projects are detailed in our grants section. Below we provide a summary of the SPRESS and PERCS experiences.

Social Pediatrics Research Summer Studentship (SPRESS)

Faculty Lead – Dr. Susanna Talarico

The SPRESS program was created three years ago to introduce undergraduate medical students to the broad field of social paediatrics. Students attend a seminar series, are provided with the opportunity to work on a research project and to be observers in clinical settings. The goal of the program is to emphasize the importance of the social determinants of health in the evaluation and management of children and to encourage the role of child health advocacy in medical students. Every summer 8-10 bright, motivated students are selected through a competitive process to take part in SPRESS. This year, 10 medical students contributed significantly to faculty research projects across the city, including Holland Bloorview and St Michael’s Hospital. Students had the opportunity to work on projects in a variety of arenas including child health policy, school-based health, and resource availability and utilization for children with Down Syndrome and Autism Spectrum Disorder. Feedback from supervisors and students has been overwhelmingly positive. A scholarly evaluation of the program showed evidence of transformative learning as students articulated feelings of empathy, empowerment, and a developing identity as advocates. Several students have stayed connected with faculty to pursue social paediatric advocacy projects. A publication is in development describing the innovative pedagogical experience, and capturing the types of learning engendered by this approach. The SPRESS program, complements a number of other departmental initiatives to increase the appreciation of the effects of the social determinants of health on children’s life trajectory.

Paediatric Research and Clinical Summer Program (PeRCS)

Faculty Lead – Dr. Seetha Radhakrishnan and Dr. Binita Kamath

The objectives of this unique program, introduced in 2012, are to provide opportunities for medical students to pursue research in paediatrics, while gaining early undergraduate exposure to clinical pediatrics and to facilitate mentorship for these students in academic pediatrics. The program offers an 8-12 week summer experience at SickKids. Students are provided joint remuneration by both supervisors and the Department of Pediatrics. First and second year University of Toronto students are eligible for the program and are chosen through a competitive selection process. 8-10 students are selected and paired with supervisors from the Department of Pediatrics who provide students with mentorship in participating in an innovative research project. To date research opportunities have included basic science and clinical projects in various fields including Cardiology, Neurology, Nephrology, Gastroenterology, Rheumatology, Endocrinology, Neonatal Intensive Care and Haematology. Students also have the opportunity to participate as clinical observers one day per week alongside clinical supervisors and to attend a lecture series from clinician scientists, investigators and educators who introduce students to careers in various aspects of pediatric academic medicine. At the end of the program students are given the opportunity to present their work to peers, supervisors, and invited guests.

Preliminary evaluation of the PeRCS program reveals that program objectives are being met successfully, with a high satisfaction rate from supervisors and students. 100% of supervisors and 90% of students agreed/strongly agreed that they intended to continue their mentorship outside of the program and that they were satisfied with their overall PeRCS experience. In August 2013, supervisors from the 2012 cohort were polled with regards to the progress of the 12 students in the 2012 cohort: 2 published manuscripts, 4 were currently preparing manuscripts, 4 abstracts were accepted at regional, national and international conferences and 2 have received trainee awards towards oral presentations of their work at international conferences. We are currently gathering follow up data on our 2013 cohort. In the future we also hope to evaluate the impact of the program in terms of the number of PeRCS students who went on to pursue careers in Pediatric academic medicine. However, to date it appears that the unique integration of research and clinical pediatrics is beneficial to learning and leads to successful mentoring relationships.

We believe that excellent education underpins excellent clinical practice. As you read through our report you will note that SPRESS and PeRCS are just a sample of the many initiatives underway in our department that aim at improving the way we think about education, the way we train, the way we learn and the way we prepare for the challenges of paediatric care.

Rayfel Schneider
Professor of Paediatrics
Associate Chair, Medical Education

Education Organization

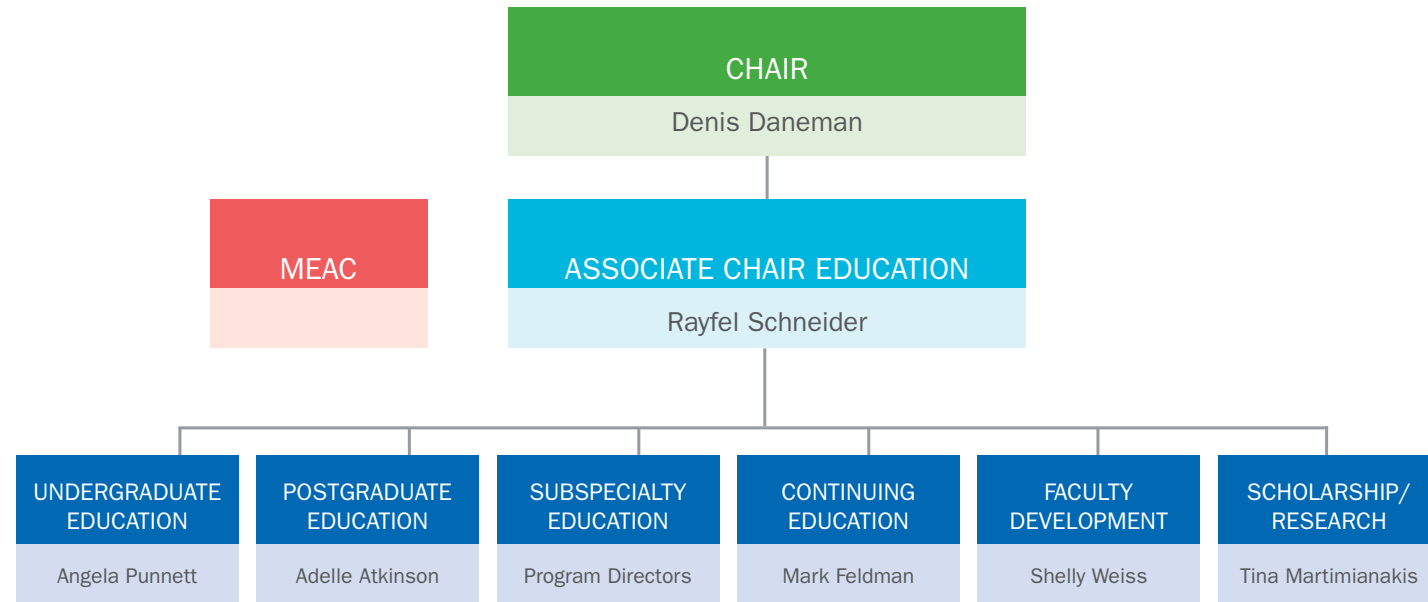
The Medical Education enterprise includes the Undergraduate, Postgraduate and Continuing Education portfolios and the offices of Faculty Development and Medical Education Scholarship. Educational activities in the Department of Paediatrics are led by Dr. Rayfel Schneider, the Associate Chair (Education) and the Medical Education Advisory Committee (MEAC) (see org. chart below). The MEAC works to enhance excellence in teaching and education and increase the recognition of the educational achievement of trainees and faculty. It also serves to foster collaborations and networks with other groups interested in education and to provide advice and guidance to the Chair with regard to educational priorities.

The Department supports faculty in a number of ways to enhance their career development as teachers and clinician educators. Details of all the activities of all the education portfolios and the educational accomplishments of faculty and trainees are provided in the body of the report.

After 9 stellar years at the helm of the Continuing Education portfolio, Dr. Suzan Schneeweiss, stepped down from this position to assume the role of Academic Director for Continuing Education and Professional Development in the Faculty of Medicine at the University of Toronto. Dr. Mark Feldman, an Associate Professor of Paediatrics was appointed as Director of Continuing Education in July, 2013. Mark is a highly respected teacher and educator in the Department of Paediatrics who has won numerous teaching awards. He also continues to hold a number of key departmental leadership positions, including Director of Integrated Education and Director of the Section of Community Paediatrics (in the Division of Paediatric Medicine), He was able to hit the ground running and, supported by Michelle Wan and the Continuing Education Committee, launched a highly successful Paediatric Update 2014 Conference. Mark's energy and innovative ideas will no doubt have a major impact on advancing continuing education in the department.

Education Organizational Chart

Department of Paediatrics, University of Toronto



Training and Leadership

Undergraduation Education

Director: Dr. Angela Punnett

Educational Administrative Staff: Mary Antonopoulos, Joanna Barnes, Margarita Komarova

Members of the Undergraduate Education Committee:

Drs. Hosanna Au, Nirit Bernhard, Zia Bismilla, Mark Feldman, Emer Finan, Claire Hutchinson, Sheila Jacobson, Miriam Kaufman, Angela Punnett, Seetha Radhakrishnan, Sarah Schwartz, Shawna Silver, Susanna Talarico, Jennifer Young, Dror Koltin (THP-CVH), Kate Gwiazda (THP-MH), Gagan Saund, Anna Selliah (WOHC), Shawna Silver, Clare Hutchinson (NYGH), Janet Saunderson (TEGH), Sohail Cheema (SMH), Sharon Naymark (SJHC), Raymond Shu (SGH- Birchmount), Peter Azzopardi (SGH-General), Jeff Weisbrot (YCH), Joseph Porepa (HRRH), Yuda Mozes (RVCH)

U of T medical students: Caroline Diorio & Suparna Sharma (1T4), Julia Dilabio & Dennison Lai (1T5)

Chief Pediatric Residents: Joseph Wiley and Michael Khoury

Highlights from 2013-2014

This past year has been busy and productive with expansion of programming in preclerkship, curriculum renewal in clerkship, and hosting of the first Council on Medical Student Education in Pediatrics (COMSEP) annual meeting held in Canada in March in Ottawa. (This year there were even Texans doing the morning jog in -15C weather!) The office continues to host the annual meeting for Paediatric Undergraduate Program Directors of Canada (PUPDOC) at SickKids and has adopted the national paediatrics curriculum (see www.pupdoc.ca). Congratulations goes to Joanna Barnes, the Pre-Clerkship coordinator, on the birth of her son Malcolm, and a warm welcome to Margarita Komarova who has joined the team in Joanna's absence. Clerkship continues under the able stewardship of Mary Antonopoulos, a guide and mentor to the team. Paediatricians continue to take on major leadership positions at the University with Elly Berger as Co-Director of the Portfolio Course (and Susanna Talarico covering for an interim);

Seetha Radhakrishnan named as interim Director of the Electives Program, and of course, Stacey Bernstein continuing as Clerkship Director for the entire undergraduate program and spear-heading the development of the Longitudinal Integrated Curriculum (LIc) pilot starting this fall. The scholarly contributions at national and international education meetings continue to grow. Head counts for this past year include 259 students per year in the four year undergraduate program with Paediatric teaching faculty numbering over 250 at present. Congratulations to the teaching award winners this year:

Nirit Bernhard – R.H.A. Haslam Preclerkship Teaching Award
Dror Koltin – Lionel Weinstein Clerkship Award
Alan Berzen – Community Paediatrics Clerkship Award

Preclerkship

The first year students have the opportunity to join the Paediatric Longitudinal Experience (PedLE), spending four half days with faculty to get a feel for Paediatrics. With the help of two enthusiastic resident leaders, Melanie Ostreicher and Danielle Weideman, the PedLE-R program has been expanded this past year. Thirty-five students were placed with one of the residents for a longitudinal clinical and mentoring experience. In second year, the Arts and Science of Clinical Medicine (ASCM 2) course, managed by Sheila Jacobson, continues to be one of the most highly rated clinical courses in preclerkship. Thank you for responding to the ongoing calls for tutors! The general paediatrics training falls primarily during 3 weeks of the 2nd year MMMD course at U of T, managed by Hosanna Au. Many contribute to lectures and seminars during this course and during the various subspecialty weeks that follow. Our office continues to host the summer research and clinical programs downtown-PerCS (6 students) and SPReSS (10 students). There were some incredible presentations of the various projects this summer. Thank you to Binita Kamath and Seetha Radhakrishnan for coordinating PerCS and to Susanna Talarico for coordinating SPReSS.

Clerkship

The 6-week core clerkship program involves an incredible number of teachers and is overseen by a dedicated undergraduate committee. A successful new hands-on seminar series was introduced as part of orientation for clerkship rotations this past year with thanks to Zia Bismalla, Nirit Bernhard, Jennifer Young, Hosanna Au, and Seetha Radhakrishnan for their leadership with this endeavor. The Paeds on the Go Handbook is updated annually under Shawna Silver's direction and with a dedicated group of undergraduate editors. The Mississauga campus officially and ably took on students for core clerkship this past year under the direction of Dror Koltin at CVH and Kate Gwiazda at MH. Colleagues at St Mike's Hospital with Ra Han and Sohail Cheema have been busy preparing the Longitudinal Integrated Curriculum (LInC) students to join shortly. This exciting initiative will have 7 students placed in longitudinal learning experiences in place of block rotations at the Fitzpatrick Academy based at St Mike's Hospital. The Clerkship OSCEs continued in March and August and the office appreciates your time and contribution as invigilators to this important evaluative component of the curriculum. Paediatrics continues to offer a wide and ever increasing selection of electives and selectives (TTR placements) that are uniformly well received by the students. The faculty and residents/fellows played a major role in the Clerkship Portfolio course as senior and junior scholars for this longitudinal curriculum.

Returning to Convocation Hall is always fun and Mary and Angela enjoy celebrating with the students as they move on to the next part of their careers. Congratulations to the following winners for their Awards in Paediatrics:

- Suparna Sharma** (Dr. Roy Simpson Scholarship in Paediatrics)
- Janet McMullen** (Dr. Yumin Li Access to Excellence in Paediatrics Award)
- Dilan Dissanayake** (Dr. Yumin Li Access to Excellence in Paediatrics Research Award)
- Caroline Diorio** (Dr. Carl Witus Prize in Paediatrics)

The final word goes to the teachers-you are the heart of this education program and your commitment to and enthusiasm for education is an inspiration to our students and our community. Thank you for all that you do.

Postgraduate Education

Director: Dr. Adelle Atkinson

Educational Administrative Staff: Sandra Layno, Jennifer Bowden

Members of the Postgraduate Education Committee:

Drs. Adelle Atkinson, Ann Jefferies, Eudice Goldberg, Eddy Lau, Lillian Sung, Michelle Shouldice, Melinda Solomon, Elizabeth Jimenez, Hilary Whyte, Jeff Kobayashi, Melanie Colpitts, Moshi Ipp, Savithiri Ratnapalan, Steven Moss, Tony Barozzino, Dror Koltin, Clare Hutchinson, Silvio Gonzalez, Ra Han, Shawna Silver, Michael Khoury, Joseph Wiley, Erica Burry, Danielle Weidman, Jennifer Smith, Kim Zhou, Kate Amiel, Julia Sharp, Anya McLaren, Brie Yama, Carol Lam

Total Number of Core Paediatric Residents 2013-2014

PGY1	PGY2	PGY3	PGY4	TOTAL
23	22	27	10	82

Highlights from 2013-2014

Postgraduate teaching in Paediatrics is decentralized with more than 10 sites involved in delivering our curriculum. The Core Residency Program as well as the subspecialty programs train not only individuals in the Royal College stream, but also Visa trainees (sponsored trainees from the Gulf Region), and other international trainees who take their skills and expertise around the world after they complete their training here.

The core program continues to be the largest training program in Canada with unparalleled resources both in depth and breadth of patient experiences as well as an outstanding teaching and research faculty. It has full approval as an accredited Royal College training program and attracts the most sought after candidates in the country. Applicant numbers continue to increase yearly (despite no change in medical school graduate numbers), including international medical graduates (Canadians who studied outside North America). The program is rich with diversity of educational and experiential backgrounds.

The success of the core training program is largely due to faculty engagement in the process and a robust program assessment strategy. A very active Residency Program Committee oversees the administration and running of the training program, and various subcommittees exist to ensure that each part of the program (resident selection, international resident selection, academic curriculum, evaluation, research, mentoring, wellness, advocacy etc.) are delivered in an evidence-informed fashion with scholarship as a natural part of the process.

The curriculum of the program is in constant evolution responding to resident feedback, Ministry of Health priorities, best practices in teaching and assessment and the changing landscape of our community. This year we continue to enjoy a significant amount of Distributed Medical Education which the residents have embraced.

Resident scholarship continues to be of a high standard. All residents are currently engaged in scholarly activities on topics related to clinical research, education, patient safety, quality assurance and patient advocacy. Our Resident Scholarship Committee is in its infancy, and growing rapidly. Under the leadership of Dr. Hans Hitzler and Dr. Binita Kamath, this committee provides leadership, guidance and oversight of scholarship in Residency.

Some of our projects are initiated and led by our trainees and others by our teachers and educators. Some of the scholarly activities explore aspects of our programming and aim to improve our curriculum and teaching. Some exciting initiatives include: looking at how residents think about assessment, and perceptions of wellness and work-life balance.

A primary focus for the program continues to be enhancing the teaching and evaluation of the CanMEDS roles. There is a robust CanMEDS curriculum within the academic ½ day, which covers a wide variety of topics and a CanMEDS OSCE offered each spring with almost 100 trainees taking part. Over the last two years, real time feedback during the OSCE was introduced with tremendous success. The program is starting to think forward to the new CanMEDS 2015 guidelines as well as Competency Based assessment and the development of milestones and entrusted professional activities.

Advocacy continues to be a focus of the program. There are currently a number of major advocacy projects underway under the leadership of the resident group. In addition to the Gosford Park Public School, our residents are very involved with the Rosedale Heights Secondary School. Both schools have at risk children and youth, and have found this collaboration beneficial. Other advocacy projects include clothing drives, a paediatric consultation clinic for the uninsured and newsletters for inpatients as examples. Residents have been involved at the ground level in implementing these projects in a scholarly way.

The postgraduate program will soon be gearing up for another round of PGY-1 CaRMS, again expecting an increase in applicants. The MD/PhD program stream through CaRMS strives to attract candidates who are interested in a research career and will involve intensive research support throughout the training program. This past year the program successfully matched four MD/PhD candidates to the first year class.

Subspecialty Education

Chair: Dr. Rayfel Schneider

Educational Administrative Staff: Sue Jenkins

Subspecialty Program Directors:

PROGRAM	PROGRAM DIRECTOR
Adolescent Medicine*	Eudice Goldberg ¹
Cardiology*	Jennifer Russell ¹
Clinical Genetics*	Roberto Mendoza ¹
Clinical Pharmacology*	Irena Nulman ¹
Developmental Paediatrics*	Anne Kawamura ¹
Emergency Medicine*	Suzanne Beno ¹
	Tania Principi ¹
Endocrinology*	Diane Wherrett ¹
Gastroenterology/Hepatology/Nutrition*	Simon Ling ¹
Haematology/Oncology*	Michaela Cada ¹
	Angela Punnett ¹
Immunology/Allergy*	Eyal Grunebaum ¹
Infectious Diseases*	Anu Wadhwa ¹
Neonatology*	Emer Finan ¹
	Martin Skidmore ¹
Nephrology*	Rulan Parekh ¹
Neurology*	Ann Yeh ¹
Paediatric Medicine	Michelle Shouldice ¹
Academic Paediatric Medicine	Michelle Shouldice
Paediatric Dermatology	Miriam Weinstein
Academic Child Abuse Paediatrics	Michelle Shouldice
Community Paediatrics	Mark Feldman
Paediatric Hospital/Inpatient Medicine	Michael Weinstein
Respiratory Medicine*	Melinda Solomon ¹
Rheumatology*	Shirley Tse ¹

¹Member of Subspecialty Program Directors Committee

* Royal College Program

Total Number of Postgraduate Trainees

NUMBER OF SUBSPECIALTY RESIDENTS	86
NUMBER OF CLINICAL FELLOWS	209
NUMBER OF RESEARCH FELLOWS	16
NUMBER OF CORE PAEDIATRIC RESIDENTS	82
TOTAL	393

There are 16 Royal College accredited programs in the Department of Paediatrics and all have full approval status following the Royal College Accreditation Review at the University of Toronto in 2013. The Program Directors meet on a regular basis to discuss their programs and consider ways to better support fellowship training. There are also clinical fellowships in Academic Paediatric Medicine, Community Paediatrics, Suspected Child Abuse Network (SCAN) and Dermatology. Child Maltreatment has been approved by the Royal College as an Area of Focused Competence (AFC) Program.

This year, our Royal College-accredited programs participated in the national subspecialty paediatrics match, attracting candidates from across the country. In addition, the subspecialty programs continued to attract excellent applicants from around the world. A total of 23 trainees matched to our subspecialty programs, attracting residents from 8 university programs across Canada. In addition, 8 positions were allocated to highly competitive international trainees to begin core training in Paediatric subspecialties.

Continuing Education

Director: Dr. Mark Feldman

Educational Administrative Staff: Michelle Wan

Highlights from 2013-2014

The overall goals of the Department of Paediatric's Continuing Education are: to provide high quality continuing education courses and conferences locally, nationally and internationally, utilizing best practice educational strategies and tools; to promote and recognize excellence in continuing education; to enhance CE programs with the utilization of new technologies; to develop a collaborative network in CE to promote scholarship in CE and best practice in continuing education; to collaborate with the Royal College of Physicians and Surgeons of Canada to promote meaningful lifelong learning opportunities and strategies for the Maintenance of Certification; to collaborate with Quality Improvement

experts to identify and address needed changes in both knowledge and practice; and to promote quality improvement in continuing education by providing ongoing feedback and evaluation of programs.

Our continuing education committee (CEC), led by Mark Feldman, is comprised of both academic and community-based health care professionals. The CEC develops and supports a breadth of programming. The committee adjudicates the Department of Paediatrics Continuing Education Award, which was won this past year by Dr. Shelly Weiss for Excellence in long term contribution to the Department's CE activity. The CEC also advocates for recognition, to the Faculty of Medicine, for excellence in teaching at the University level and this year the Colin Woolf Award, recognizing excellence in teaching at a CE forum, was won by Dr. Miriam Weinstein.

Faculty members of the Department of Paediatrics have been very active again in continuing education activities this past academic year. City Wide Paediatric rounds, supervised by Dr. Mark Feldman and organized by Drs. Umberto Cellupica and Michael Peer from the Division of Paediatric Medicine, continue to be a very popular event attracting 120 community-based paediatricians per quarter. The 2014 Annual Paediatric Update (course director: Dr. Mark Feldman) was held from April 30th to May 3rd, and is the largest general paediatric conference by a Department of Paediatrics in Canada, attracting a local, national and international audience and this past year exceeding our previous record attendance with 275 participants. There was outstanding faculty contribution with 48 members of our faculty presenting at this event with 18 guests. This year, an Adolescent Medicine Subspecialty Day, under the direction of Dr. Miriam Kaufman was presented.

Recognizing the importance of assessment and feedback in continuing education, an innovative, electronic, pre & post conference test was introduced at Paediatric Update 2014. The goal was to introduce self-assessment (pre-test), reflection (pre-conference) and peer assessment with feedback (post test). A minimum number (25) Category 3 credits is a very recent requirement of the RCPSC for our maintenance of competence. To the best of our knowledge, for the first time at a large paediatric conference in Canada, this 'knowledge assessment' component qualified for RCPSC category 3 (assessment) MOC credits.

Finally, many more of our divisions have been engaged in a variety of continuing education events as described in Table 1 below.

Table 1: CE events July 1, 2013-June 30, 2014

DEPARTMENT OF PAEDIATRICS	
COURSE DIRECTOR	EVENT
Dr. Rayfel Schneider Dr. Meredith Irwin	Annual SickKids Paediatric Research Day May 28, 2014
Dr. Mark Feldman	2014 SickKids Annual Paediatric Update Conference April 20-May 3, 2014
Dr. Shelly Weiss	Medical Education Day March 5, 2014
INFECTIOUS DISEASES	
COURSE DIRECTOR	EVENT
Dr. Valerie Waters	Infectious Disease Clinical & Research Forum A monthly series of clinical research related topics of interest to ID Fellows, Staff and other members of the ID community.
Dr. Upton Allen	Congenital CMV Infection: Progress and Remaining Challenges. November 2013

PAEDIATRIC EMERGENCY MEDICINE	
COURSE DIRECTOR	EVENT
Dr. Suzan Schneeweiss	Paediatric Emergency Procedural Sedation Course July 23, 2013, October 17, 2013, May 7, 2014, July 24, 2014, October 22, 2014
Dr. Suzan Schneeweiss	10th Annual Paediatric Emergency Medicine Conference October 18-19, 2013, 11th Annual October 23-24, 2014
Dr. Jason Fischer	Paediatric Emergency Ultrasound Course October 17, 2013 and October 22, 2014
Dr. Suzan Schneeweiss	Advanced Paediatric Life Support Course September 25, 2014, March 31, 2014, April 28-29, 2014, September 15-16, 2014
Dr. Jason Fischer	Paediatric Emergency Ultrasound Conference POCUS May 28-29, 2014

CLINICAL PHARMACOLOGY	
COURSE DIRECTOR	EVENT
Dr. Gideon Koren	Motherisk Update Conference May 21, 2014

PAEDIATRIC MEDICINE	
COURSE DIRECTOR	EVENT
Drs. Umberto Cellupica and Michael Peer	City Wide Rounds held 4 times annually for community based Paediatricians Sept 17, 2013; Nov 19, 2013; Jan 21, 2014; May 7, 2014
Dr. Michelle Shouldice Tanya Smith NP (SCAN Program)	Current Issues in Child Maltreatment: Multidisciplinary Perspectives, Nov 25, 2013 Canadian Symposium on Advanced Practices in Child Maltreatment Pediatrics 2013, Nov 26-28, 2013 Canadian Symposium on Advanced Practices in Child Maltreatment Pediatrics: Medical Evaluation of Suspected Physical Abuse, Nov 27-28, 2013

Dr. Adam Rapoport Dr. Christine Newman Dr. Kevin Weingarten Dr. Kate Nelson NP Rebecca Williams CNS Gurjit Sangha CNS Francis Macapagal Grief Support Coordinator (GSC) Norah Shaughnessy GSC Lori Ives-Baine (PACT Program)	Pediatric Hospice Palliative Care (PHPC)-4 Day Workshop (held at SickKids Hospital) September 10th, September 24th, October 8th + October 15th 2013 5th Annual Paediatric Palliative Care Symposium: Controversial & Ethical Issues in Paediatric Palliative and End of Life Care, October 16th, 2013 Pediatric Hospice Palliative Care (PHPC) (4 Day Workshop – held externally in Barrie for CCAC), May 12th, 13th, 26th + 27th 2014
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CARDIOLOGY	
COURSE DIRECTOR	EVENT
Drs. Edgar Jaeggi and Fraser Folding	Assessment of the fetal heart during routine ultrasound examination September 12, 2013
Dr. Andrew Redington	4th Canadian Cardiac Pathology & Imaging Course September 11-13, 2013
Drs. Lars Grosse-Wortmann, Mike Seed and Taylor Chung	SPR Hands-on Course November 5-7, 2013
Drs. Lars Grosse-Wortmann, Mike Seed and Taylor Chung	9th Symposium on Advanced paediatric Cardiovascular Imaging November 8-10, 2013
Dr. Mark Friedberg	3rd FY Symposium June 4-5, 2014
Drs. Andrew Redington and Glen Van Arsdell	6th Toronto Cardiac Symposium June 6-8, 2014

NEUROLOGY – CENTRE FOR BRAIN AND MENTAL HEALTH	
COURSE DIRECTOR	EVENT
Dr. Steven Miller	Monthly Seminar Series: Cross Talks The Centre for Brain & Mental Health's monthly seminar series, Oct 24, 2013; March 25, 2014; April 22, 2014; May 20, 2014
Dr. Steven Miller	3rd Biennial Brain Injury in Children Conference July 9 – 11, 2013
Dr. Steven Miller	8th Annual Brain & Mental Health Day Neuroscience Research Symposium April 16, 2014

DEVELOPMENTAL PAEDIATRICS	
COURSE DIRECTOR	EVENT
Dr. Golda Milo Manson	Child Development Update Conference 2013 November 8-9, 2013
RHEUMATOLOGY	
COURSE DIRECTOR	EVENT
Drs. Rayfel Schneider and Ronald Laxer	Auto-inflammatory Preceptorship Symposium November 21-22, 2013
HAEMATOLOGY/ONCOLOGY	
COURSE DIRECTOR	EVENT
Dr. Angela Punnett, Denise Mills and Sue Zupanec	Childhood Cancer Therapy Update October 2, 2013

Faculty Development

Director: Dr. Shelly Weiss

Educational Administrative Staff: Clare Schlesinger

Members of the Faculty Development Committee:

Drs. Shelly Weiss, Nirit Bernhard, Catherine Birken, Doug Campbell, Anne Dipchand, Mark Friedberg, Tina Martimianakis, Sanjay Mehta, Suzan Schneeweiss, Rayfel Schneider, Dennis Scolnik

Highlights from 2013-2014

On April 10, 2014, the Faculty Development Committee organized an extremely successful Paediatric Academic Career Day. All faculty within their first five years of appointment to the Department of Paediatrics were invited to participate and the curriculum included presentations by Drs. Denis Daneman, Rayfel Schneider, Meredith Irwin, Jeremy Friedman, Melvin Freedman, Shelly Weiss, Tina Martimiankis and Mr. Ben Vozzolo. Topics centered around such areas as promotion, research and education, mentorship and human resources/financial issues. There were 26 participants in this event, which will be repeated in 2016.

Medical Education Day was held on Wednesday, March 5, 2014. Dr. Brian Hodges, Vice-President of Education, University Health Network and Wilson Centre Scientist, was the guest speaker. The topic for Grand Rounds was “Teaching medicine in a globalized world: Culture, ethics and education”. Following Grand Rounds there was a 90-minute workshop led by Drs. Hodges and Tina Martimiankis on the topic of “Teaching medicine in a globalized world: Exploring the implications for educators”. The day concluded with a panel of education scholars who presented their research in the area of education in a globalized world.

The Department of Paediatrics' mentorship program for junior faculty is ongoing. All faculty, upon their appointment to the Department, are invited to meet with Dr. Weiss, the Director of Faculty Development. In this meeting, many issues regarding orientation and academic career development as well as mentorship are discussed. Each junior faculty is given the opportunity to participate in the formal departmental mentorship program which involves an assigned mentor who is outside of his/her division with a similar job profile. At this meeting the junior faculty members are made aware of the resources and programs provided both by the Faculty Development Office as well as the Center for Faculty Development, U. of T. Another initiative to assist in the orientation of new faculty has been the ongoing informal lunch meetings arranged by the Office of Faculty Development and hosted by Dr. Denis Daneman, Paediatrician-in-Chief, The Hospital for Sick Children and Chair of Paediatrics, University of Toronto, Dr. Shelly Weiss, Director of Faculty Development. This past academic year, four lunches were held with 39 invited faculty members. These informal meetings were highly evaluated by the participants.

The Department of Paediatrics Faculty Mentorship Award was introduced in 2013 to recognize a faculty member for his or her outstanding approach to mentoring. Letters of nomination were submitted to the Faculty Development Committee and a subcommittee was appointed to review all candidates and adjudicate. Dr. Gideon Koren of Clinical Pharmacology and Toxicology, and Director of Motherisk Programs and was the second recipient of the award, which was presented as part of the Department of Paediatrics' annual awards day in June 2014. Dr. Rayfel Schneider was the first runner-up for the award.

Scholarship/Research

Director: Dr. Tina Martimianakis

Educational Administrative Staff: Clare Schlesinger

Members of the Educational Scholarship Enhancement

Committee: Drs. Tina Martimianakis (Chair), Anu Wadhwa, Maria Mylopoulos, Nikki Woods, Angela Punnett, Shelly Weiss

Highlights from 2013-2014

Administration and Coordination

The office of Medical Education Scholarship oversees activities associated with enhancing the capacity of faculty, residents and fellows to engage in educational scholarship broadly defined to include: research in education, program development, educational innovation and scholarly teaching. It also showcases the Department's education achievement and works to identify opportunities for future growth. In addition, the office oversees the adjudication of educational granting opportunities supported through the Paediatric Consultants Fund.

Funding

Educational research and educational development are supported through two separate grant competitions offered twice a year. The grants provide up to \$5000 to support 1 year projects led by members of the Department (faculty and trainees) that contribute meaningfully to the educational mission of our programs. This past year, 3 applications were successful in the Innovation and Development stream and 3 Research Grants were approved for funding with feedback on submissions following the announcement of the competition results.

Programming

The Office of Medical Education Scholarship continued to deliver its two-part educational series to provide opportunities for dissemination, networking and sharing of ideas on ongoing projects:

Medical Education Scholarship Rounds

"Moving our ideas forward"

The rounds provide a forum for faculty and trainees to share their educational research and scholarship and an opportunity to think about methodological issues. The rounds are intended to have practical application to educational work. Resources are also shared at each session to provide participants with the opportunity for future learning.

Educational Journal Club

"Integrating knowledge into practice"

At each session, participants are exposed to a selection of interesting articles published in the last couple of years on topics such as competency based teaching, assessment and evaluation, the hidden curriculum, professionalism, etc.

This past year, we had many invited speakers from other Departments and Universities, including two international speakers.

MES ROUNDS 2013-2014

Sept 30 The Art and Science of Visual Presenting	Douglas Buller, Wilson Centre
Oct 17 Prosthesis as an organizing principle for educational technology	Rachel Ellaway, NOSM
Oct 22 In collaboration with CAMH: The Waiting Room as Liminal Space	Debra Hamer, Department of Psychiatry
Nov 25 The Importance of Being Earnest: Hospitals & Universities Making Money Abroad	Rob Paul, Wilson Centre
Jan 27 Mixed Methods Research or The Art of Combining Multiple Ingredients: Haute Cuisine or Recipe for Disaster?	Dominique Piquette, Wilson Centre
Feb 24 Team learning in healthcare contexts	Tina Martimiankis, Department of Paediatrics
Mar 24 Medical Professionalism: Cross-cultural Studies	Ming-Jung Ho, University of Taiwan
May To build or not to build: Engaging health professionals in building simulations	Mohammad Zubairi, Wilson Centre
June 23 In collaboration with Wilson Centre: Bedside teaching: Past, Present, Future? A discursive exploration of a signature pedagogy	Peter Cantillon, Maastricht University

EDUCATIONAL JOURNAL CLUB 2013-2014

Sept 18 Matter-ings of knowing and doing: Sociomaterial approaches to understanding practice	Tara Fenwick, University of Stirling
Dec 2 To Build or Not to Build: Engaging Health Professionals in Building Simulations	Mohammad Zubairi, Wilson Centre
Feb 3 Let's talk about advocacy	Cristian Rangel, Wilson Centre Tina Martimiankis, Department of Paediatrics,
Mar 3 Cognitive Load Theory and Instructional Design for Simulation-Based Medical Education	Sophie Soklaridis, Department of Psychiatry
Apr 7 Global Health: Challenges to a 'common' definition	Jeffrey Cheung, Wilson Centre
May 5 Test Enhanced Learning: How Assessment Can Optimize Instruction"	Rabia Khan, Wilson Centre
Jun 2 Transforming Culture Around Social Paediatrics Education and Scholarship	Angela Punnett, Susanna Talarico, Hosanna Au, Department of Paediatrics

Training and Leadership Staff

Educational Administrative Staff:

Mary Antonopoulos, *Undergraduate Education*
Joanna Barnes, *Undergraduate Education*
Margarita Komarova, *Undergraduate Education*
Susan Jenkins, *Administrative Supervisor*
Sandra Layno, *Postgraduate Education*
Jennifer Bowden, *Postgraduate Education*
Michelle Wan, *Continuing Medical Education*
Clare Schlesinger, *Faculty Development & Medical Education Scholarship*

Education Scientists:

Tina Martimianakis, PhD, *Department of Paediatrics*
Maria Mylopoulos, PhD, *Learning Institute*

Faculty pursuing formal training in education 2013-2014:

Briseida Mema (*Masters in Education*)
Clare Hutchinson (*Masters in Education*)
Angela Punnett (*Masters in Education*)
Katherine Hick (*Education Scholars Program & Stepping Stones*)
Michaela Cada (*Education Scholars Program*)
Emma Cory (*Education Scholars Program*)
Angela Orsino (*Education Scholars Program*)
Pamela Coates (*New and Emerging Academic Leaders (NEAL) Program*)
Isaac Odame (*New and Emerging Academic Leaders (NEAL) Program*)

Trainees pursuing formal training in education 2013-2014:

Julie Johnstone (*Masters in Education*)
Catherine Walsh (*PhD in Education*)
Melanie Ostreicher (*Stepping Stones*)
Joanna Humphreys (*Stepping Stones*)
Miriam Burns (*Stepping Stones*)
Lauren Kitney (*Stepping Stones*)
Faisal Kordy (*Stepping Stones*)

Faculty completed formal training in education 2013-2014:

Susanna Talarico (*Masters in Education*)
Lindsey Crow (*Stepping Stones*)
Dror Koltin (*Stepping Stones*)
Elizabeth Jimenez (*Stepping Stones*)
Golda Milo-Manson (*Stepping Stones*)
Ra Han (*Stepping Stones*)
Jennifer Young (*Stepping Stones*)
Melissa Carter (*Stepping Stones*)
Yousef Etoom (*Stepping Stones*)

Trainees who completed formal training in education 2013-2014:

Charles Larson (*Stepping Stones*)
Leanne Shamrakov (*Stepping Stones*)
Rudaina Banihani (*Stepping Stones*)
Eva Fernandez Diaz (*Stepping Stones*)
Andrea Guerin (*Stepping Stones*)
Mohammad Zubairi (*Stepping Stones*)

Publications

Our educational research and scholarship is disseminated regularly in leading clinical and educational journals. This past academic year our faculty and residents authored 32 peer reviewed publications.

Peer Reviewed Publications

Al-Azri H, Ratnapalan S. Problem-based learning in continuing medical education: Review of randomized controlled trials. *Can Fam Physician* 2014; 60 (2): pp 157-65.

Alshammary SA, Ratnapalan S, Akturk Z. Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia. *J Educ Eval Health Prof* 2013; 31(10)7.

Arweiler D, Millette B, Maniate J, Reeves S, Hodges B, Parker S, Martimianakis T. Fostering leadership and innovation capacities for change in medical education and medical practice. *MedEdWorld* 2013. Open Access.

Batthish M, Schneider R, Feldman BM, Hyman A, Bassilious E and Tse SML: Residents' Perceptions of an Interactive Web-Based Rheumatology Teaching Module. *Pediatric Rheumatology* 2013; 11 (1): pp 22.

Bernstein, S., Atkinson, AR., & Martimianakis, MA. (2013). Diagnosing the Learner in Difficulty. *Pediatrics*, 132(2), 210-212.

Calaman S, Spector ND, Starmer AJ, O'Toole JK, Allen AD, Tse LL, Bale JF, Bismilla Z, Coffey M, Cole FS, Destino L, Everhart J, Hepps J, Kahana M, McGregor RS, Patel SJ, Rosenbluth G, Srivastava R, Stevenson A, West DC, Sectish TC, Landrigan CP, Yu CE, Lopreiato JO. I-PASS Handoff Curriculum: Computer Module. *MedEdPORTAL* 2013: <https://www.mededportal.org/publication/9337>.

Chen, L, Sun J, Hilliard P, Zourikian N, Hang M, Blanchette V, Poon MC, Luke KH. "Train-the-Trainer": An effective and successful model to accelerate training and improve physiotherapy services for persons with hemophilia in China. *Haemophilia* 2014; 20(3): pp 441-445.

Boutis K, Pecaric M, Ridley J, Andrews J, Pusic M. Hinting Strategies for Improving the Efficiency of Medical Student Learning of Deliberately Practiced Web-based Radiographs. *Medical Education* 2013 September; 47(9): pp 877-887.

Hodges BD, Martimianakis MA, McNaughton N, Whitehead C (2014) Medical Education...Meet Michel Foucault, *Medical Education* 2014; 48 (6): pp 551- 645.

Kulasegara KM, Martimianakis MA., Mylopoulos M, Whitehead C, Woods N. Cognition before Curriculum: Rethinking the Integration of Basic Science and Clinical Learning. *Academic Medicine RIME Review* October 2013; 88(10): pp 1-8.

Leather RA, Gardner M, Green MS, Kavanagh K, Macle L, Ahmad K, Gray C, Ayala-Paredes F, Guerra PG, O'Hara G, Essebag V, Sturmer M, Baranchuk A, Hruczkowski T, Lashevsky I, Novak P, Chakrabarti S, Harris L, Gula LJ, Morillo C, Sanatani S, Hamilton RM, Gow RM, Krahn AD. Charting a course for cardiac electrophysiology training in Canada: the vital role of fellows in advanced cardiovascular care. *Canadian Journal of Cardiology* 2013; 29 (11): pp 1527-1530.

Leslie K, Baker L, Egan Lee E, Reeves S. Advancing faculty development: a systematic review *Academic Medicine*. 2013; 88(7): pp 1038-1045.

Levy R, Dubrowski A, Amin H, Bismilla Z: Procedural Skills in Pediatric Residency: Re-evaluating the Competencies. *Paediatrics and Child Health: Paediatrics and Child Health*. April 2014: 19 (4): pp 180-184.

Lieff S, Banack JG, Baker L, Martimianakis MA, Verma S, Whiteside C, Reeves S. Understanding the Needs of Department Chairs in Academic Medicine. *Academic Medicine*. July 2013: 88(7): pp 960-966.

Lundon K, Kennedy C, Rozmovits L, Sinclair L, Shupak R, Warmington K, Passalent L, Brooks S, Schneider R, Soever L. Evaluation of perceived collaborative behaviour amongst stakeholders and clinicians of a continuing education program in arthritis care. *Journal of Interprofessional Care*. September 2013: 27 (5): pp 401-407.

Martimianakis MA, Albert M. Confronting complexity: Medical education, social theory, and “the fate of our times”. *Medical Education*. 2013: 47(1): pp 3-5.

Martimianakis MA, Hafferty F. The world as the new local clinic: A critical analysis of three discourses of global medical competency *Social Science and Medicine*. 2013: 87: pp 31-38.

Morin MP, Schneider R., Martimianakis MA., Bowen F, Mylopoulos M. Active Engagement of Teens with Juvenile Idiopathic Arthritis in Medical Education: What Do They Think Their Contribution Might Be? *Arthritis & Rheumatology*. March 2014: 66 (S11): pp S184.

Mylopoulos M, Woods NN. Preparing medical students for future learning using basic science instruction. *Medical Education*. 2014: 48(7): pp 667-673.

Nigrovic PA, Muscal E, Riebschleger M, Moorthy LN, Brunner HI, Eberhard BA, Klein-Gitelman M, Prahalad S, Schneider R. AMIGO: A novel approach to the mentorship gap in pediatric rheumatology. *Journal of Pediatrics*. February 2014: 164 (2): pp 226-227.

Onyura B, Légaré F, Silver I, Rosenfield J, Hodges B, Curran V, Armson H, Kitto S, Reeves S, Leslie K. An exploration of the determinants of knowledge use in a medical education context. *Academic Medicine*. March 2014.

O’Toole J, West DC, Starmer AJ, Yu CE, Calaman S, Rosenbluth G, Hepps J, et al for the I-PASS Study Education Executive Committee (Coffey T, Bismilla Z). Placing Faculty Development Front and Center in a Multisite Educational Initiative: Lessons From the I-PASS Handoff Study. *Academic Pediatrics* May-June 2014: 14 (3): pp 221-224.

O’Toole JK, Sectish TC, Starmer AJ, Rosenbluth G, West DC, Landrigan CP, Allen AD, Noble EL, Srivastava R, Tse LL, Hepps J, Lopreiato JO, Calaman S, Yu CE, Spector ND, and the I-PASS Educational Executive Committee (Coffey T, Bismilla Z). I-PASS Handoff Curriculum: Faculty Development Resources. *MedEdPORTAL* 2013: Available from: <https://www.mededportal.org/publication/9540>.

O’Toole JK, Stevenson AT, Good BP, Guiot AB, Solan LG, Tse LL, Landrigan CP, Sectish TC, Srivastava R, Starmer AJ, Spector ND, I-PASS Study Group (Bismilla Z, Schwartz S). Closing the Gap: A Needs Assessment of Medical Students and Handoff Training *Journal of Paediatrics*. May 2013: 162: (5): pp 887-888.

O’Toole JK, Sectish TC, Starmer AJ, Rosenbluth G, West DC, Landrigan CP, Allen AD, Noble EL, Srivastava R, Tse LL, Hepps J, Lopreiato JO, Calaman S, Yu CE, Spector ND, and the I-PASS Educational Executive Committee. I-PASS Handoff Curriculum: Faculty Development Resources. *MedEdPORTAL* September 2013: <https://www.mededportal.org/publication/9540>.

Ramakrishna J, Valani R, Sriharan A, Scolnik D: Design and pilot implementation of an evaluation tool assessing professionalism, communication, and collaboration during a unique global health elective. *Medicine, Conflict and Survival Journal*. 2014: 30 (1): pp 56-65.

Ratnapalan S, Uleryk E. Organizational Learning in Health Care Organizations. *Systems* 2014: 2 (1): pp 24-33.

Rozenblyum E, Mistry N, Cellucci T, Martimianakis M. A., Laxer R. Resident’s Guide to Rheumatology Guide Mobile Application: An International Needs Assessment. *Arthritis & Rheumatology*. March 2014: 66(S11): pp S187.

Starmer A, Landrigan C, Srivastava R, Wilson K, Allen A, Mahant S, Blank J, Sectish T, Spector N, West DI. I-PASS Handoff Curriculum: Faculty Observation Tools. *MedEdPORTAL*: Oct 2013. Available from: www.mededportal.org/publication/9570.

Starmer AJ, O’Toole JK, Rosenbluth G, Calaman S, Balmer D et al for the I-PASS Study Education Executive Committee. Development, Implementation, and Dissemination of the I-PASS Handoff Curriculum: A Multisite Educational Intervention to Improve Patient Handoffs. *Academic Medicine* June 2014: 89 (6): pp 1-9.

Starmer AJ, O’Toole JK, Rosenbluth G, Calaman S, Balmer D, West DC, Bale JF, Yu CE, Noble EL, Tse LL, Srivastava R, Landrigan CP, Sectish TC, Spector ND; and members of the I-PASS Education Executive Committee. Development, Implementation, and Dissemination of the I-PASS Handoff Curriculum: A Multi-Site Educational Intervention to Improve Patient Handoffs. *Academic Medicine* 2014 June: 89 (6): pp 876-884.

Van den Heuvel M, Au A, Levin L, Bernstein S, Ford Jones E, Martimianakis MA: “Evaluation of a social pediatrics elective-Transforming student’s perspective through reflection”. *Clinical Pediatrics*. June 2014: 53

Funding

In the past academic year, the grant capture of our faculty, residents and fellows included **51 awards totaling \$675,504 CAD** (multi-year funds have been adjusted to reflect monies allotted for one academic year in the calculation of this total) to pursue research in education.

Paediatric Consultants (PC) Education Research Grants, HSC

In the 2013-2014 academic year 6 Paediatric Consultants Education Grants were awarded to faculty members pursuing research which promises to increase understanding of educational phenomenon and contribute to theory building on such topics as research methods, attitudes and perceptions to teaching, career decision-making and technologically enhanced learning. The projects awarded also hold potential to enhance our local educational practices.

PC: Education Research

Climbing the learning curve-Teaching the medical learner how to interpret pediatric electrocardiograms. Boutis K, Pusic M, Pecaric M, Walker R. **Paediatric Consultants Educational Research Grant.** \$5000 CAD. 2013 – 2014.

The implementation of a night float system at a large Canadian paediatric training program: Perceived impact on patient care, education and quality of life. Bismilla Z, Atkinson A, Coffey T, Wiley J, Khoury M. **Paediatric Consultants Educational Research Grant.** \$5000 CAD. January 2014 – January 2015.

Rehearsal vs. Premier-Chest tube skills from simulation to bedside. Mema B, Mylopoulos M, Park Y. **Paediatric Consultants Educational Research Grant.** \$5000 CAD. April 2014 – April 2015.

PC: Education Innovation & Development

Closing the gap in handoff communication: Focusing on medical students on inpatient teams. Schwartz S, Bismilla Z. **Paediatric Consultants Education Innovation and Development Grant.** \$5000 CAD. July 2013-June 2014.

Developing e-CHEMO-An e-learning chemotherapy curriculum for hematology/oncology fellows. Shaikh F, Wilejto M. **Paediatric Consultants Education Innovation and Development Grant.** \$4740 CAD. July 1-2013 – June 30-2014

Paediatric Career Decisions -Making: The role of a summer pre-clerkship educational program at Holland Bloorview Kids Rehabilitation Hospital. Orsino, A. **Paediatric Consultants Education Innovation and Development Grant.** \$5000 CAD. July 2013-June 2014

Education Development Fund, UofT

The EDF is a seed fund of the Faculty of Medicine designed to catalyze initiatives that immediately and directly impact University of Toronto Faculty of Medicine education and teaching programs through innovation and development. Proposals require matched funding that can come from a variety of sources such as grants, clinical departments and other. The EDF is a very competitive fund. This year our department received one award:

Resource Stewardship Workshop: Teaching Internal Medicine and Pediatric Residents to Communicate Effectively with Patients to Avoid Potential Harm from Unnecessary Diagnosis Tests. Mukerji G, Schwartz S, Moore Hepburn C, Atkinson A, Wong BMF, Stroud L, Weinerman A. University of Toronto Faculty of Medicine, **Educational Development Fund.** \$5,823 CAD. July 1-2014-June 30-2015

PeRCS: The Pediatric Research and Clinical Summer (PeRCS) Program

Anticoagulation prophylaxis in children with a central venous catheter and thrombosis. Brandao L, Kaplansky B. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

Assessment of the response to CFTR-modulating treatment in human intestinal tissue biopsies. Gonska T, Gross J. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

Blood pressure as a marker for the development of chronic kidney disease in paediatric non-renal solid organ transplant. Parekh R, Williams C. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

Characterization of Prepubertal Children with Differentiated Thyroid Carcinoma Wasserman J, Hampson S. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

Interventions and outcomes in pediatric MS and demyelinating disorders. Yeh A, Gieberzon J. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

Unravelling pathomechanisms of atypical hemolytic uremic syndrome. Licht C, Balgobin S. **The Pediatric Research and Clinical Summer (PeRCS) Program.** \$3,300 CAD. June – August 2014

SPReSS: The Social Pediatrics Research Summer Studentship (SPReSS) Program

Characteristics of Pain in Children and Youth with Cerebral Palsy and their Impact on Health-Related Quality of Life. Fehlings D, Findlay B. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

School Based Health Care: A model for improving wait times to developmental assessments and outcomes for children in inner city schools: a cluster randomized controlled trial and qualitative analysis. Freeman S, Gold M. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

Undiagnosed genetic conditions in a structured complex care program. Bernhard N, Gilmour A. Strengthening Community Resource Utilization for New Parents of Children with Down Syndrome. Dr. Charlotte Moore-Hepburn Marcella Jones Fetal Alcohol Spectrum Disorder: The Canadian Policy Response. Cohen E, Oei K. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

Understanding of Latent Tuberculosis, Treatment Side Effects, and Adverse Reaction Protocol in a Pediatric Setting. Morris S, Giroux R. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

The Developmental Passport: How to ensure our families are accessing the right care. Elizabeth Y, Bechard N. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

The Association Between Meat or Meat Alternatives and Iron Stores in Early Childhood: A TARGet Kids! Maguire J, Cox K. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

Performance on Education Quality and Accountability Office (EQAO) Assessments by Children Affected by Sickle Cell Disease. Kirby-Allen M, Bagg J. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

Developing a Database for Clinical Care in the Young Families Program – a QI initiative. Hick K, Singh V. **The Social Pediatrics Research Summer Studentship (SPReSS) Program.** \$3,300 CAD. June – August 2014

Other Funding Sources

An important component of our educational research activity involves collaborations that span departments and institutions. Furthermore, our faculty were involved in collaborative research projects that were merited with funding from a variety of sources including the Royal College, CIHR, PSI, Royal College, among others.

A deliberate practice method for learning the spectrum of physical examination findings in child sexual abuse. Boutis K, David A, Pecaric M, Pusic M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$6,000 CAD. January 2014-January 2015

A discourse analysis of 50 years of the journal of Medical Education. Whitehead, C., Martimianakis, M. A., Kuper, A. **The Journal of Medical Education.** \$12,440 CAD. 2013-2015

Bridging worlds by integrating perspectives and competencies-exploring the development of adaptive expertise. Kawamura A, Mylopoulos M. **Bloorview Research Institute Catalyst Grant.** \$12,000 CAD. 2014-2015

Bundling effective resident handoff tools to improve patient safety: A multi-center pediatric residency quality improvement initiative. Landrigan C, Coffey T, Mahant S. I-PASS Study Group. **National Institutes of Health.** \$18,000 USD. August 1-2011-July 31-2013

Canadian Pediatric Clinician Scientist Program. Jones NL. **BC Research Institute for Children and Women's Health.** \$150,000 CAD. April 1-2012-March 31-2015

Canadian Pediatric Clinician Scientist Program. Jones NL. **Manitoba Institute of Child Health.** \$50,000 CAD. April 1-2012-March 31-2015

Canadian Pediatric Clinician Scientist Program. Jones NL. **The Hospital for Sick Children Foundation.** \$300,000 CAD. April 1-2012-March 31-2015

CIHR Canadian Child Health Clinician Scientist Training Program. Jones NL, Stevens B, Han VKM, Lee SK, Chemtob S. **Canadian Institutes of Health Research.** \$325,000 CAD. April 1-2012-March 31-2015

Communication Skills Training: An Integrated On-Line and Classroom Design using Standardized Patients and Peer Role Playing. Dempster L, Lam E, Burgess K, Posluns J, Fiege J, Hayes A, Dubrowski A, Cheung JJ, Kapralos B, McKay L. **Dean's Endowment Enrichment Fund 2013, Faculty of Dentistry, University of Toronto.** \$10,192 CAD. 2013-2014

Climbing the Learning Curve – Teaching the Medical Learner how to Interpret Pediatric Electrocardiograms. Etoom, Y, Boutis K, Pusic M, Pecaric M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$6,000.00 CAD. March 2014

Climbing the Learning Curve – Teaching the Paediatric Emergency Physician How to Interpret Point-of-Care Ultrasound Images. Kwan CW, Boutis K. **Young Investigator Award, Academic Pediatric Association.** \$10,000 CAD. 2013 – 2014

Climbing the Learning Curve – Teaching the Paediatric Emergency Physician How to Interpret Point-of-Care Ultrasound Images. Kwan CW, Boutis K. Faculty Development Award, **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$3500 CAD. 2013

D-PRIME: (Deliberate Practice of Image Interpretation in Medical Education). Boutis K, Pusic M. **Division of Paediatric Emergency Medicine, The Hospital for Sick Children.** \$7,760 CAD. January 2013-December 2013

Defining competence for faculty developers. Leslie K, Baker L, Stubbs B, Panisko D, Meuser J, Walsh A, Marshall D, Lingard L, Myopoulous M. **Royal College of Physicians and Surgeons of Canada Medical Education Grant.** \$44,566 CAD. January 2012-December 2014

Developing An Interprofessional Care (IPC) Assessment Tool for Healthcare Teams: A One-Day Planning Forum. Soklaridis S, Chambers J, Cunning S, Fung A., Martimianakis MA, Mylopoulos M, Sargeant J, Romano D, Silver I, Wiljer D. **Canadian Institutes of Health Research (CIHR) Planning Events.** \$22,785 CAD. 2013-2014

Developing a Simulation Scenario Design Process for the Training and Study of Adaptive Expertise. Brydges R, Mylopoulos M. RCPSC/Associated Medical Services. CanMEDS Research and Development Grant, **The Royal College of Physicians and Surgeons of Canada.** \$25,000 CAD. 2013-2015

Exploring continuity, integration, context and curriculum during Longitudinal Integrated Clerkship (LIc) Training. Weyman K, Graves L, Bernstein S, Hawa R, Schreiber M, Woods N, Martimianakis MA, Mylopoulos M, Kulasegaram, Nyhof-Young J, Wright S, Zirkle M, Pittini R. **Education Development Fund, Faculty of Medicine, University of Toronto.** \$19,075 CAD. January 1-2014 – December 31-2014

Exploring Continuity, integration, context and curriculum during Longitudinal Integrated Clerkship (LIC) Training. Weyman K, Kulasegaram M, Graves L, Bernstein S, Hawa R, Schreiber M, Martimianakis MA, Woods N, Nyhof-Young J, Wright S, Pittini R, Zirkle M. **Education Development Fund.** \$9,537 CAD. March 1-2014 – February 28-2015

Humanism, the Hidden Curriculum, and Educational Reform: A Scoping Review and Thematic Analysis. Martimianakis, MA., Hafferty, F, Michalec B, Taylor J. **CREMS – funding for Justin Lam (medical student).** \$5500 CAD. 2013-2014

Humanism, The Hidden Curriculum, and Educational Reform: A Scoping Review and Thematic Analysis. Hafferty, F., Martimianakis, MA., Michalec B , Taylor J. **The Gold Foundation.** \$5000.00 US. 2013-2014

Improving resident handoff in teaching hospitals: Understanding implementation and effectiveness of a handoff bundle. Coffey M, Starmer A, Mahant S, Matlow A, Bismilla Z, Landrigan C. **Physician Services Incorporated.** \$154,820 CAD. October 1-2011-September 30-2015

Improving Stroke Rehabilitation Services Through Evidence-based Practice and Knowledge Translation: Distinguishing Features and Determinants of Expert Stroke Evidence-based Rehabilitation Practice. Thomas, A, Mylopoulos M, Rapport S, McCluskey A, Vachon B, Meno A, Rochette A. **Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal.** \$30 000 CAD. 2014-2015

Is this best taught using simulation? Using the delphi method to develop the framework for a national general pediatric simulation-based training curriculum. Langevin M, Drover A, Banks I, Pirie J, Shefrin A. **Resident Funding, CHEO Research Institute.** \$2,000 CAD. Aug 2012-Jul 2014

“Its not just about getting along”: Discourses of collaboration and team learning. Martimianakis MA, Mylopoulos M, Schneider R, Tse S. **Royal College CanMeds Education Grant**. \$23,910 CAD. 2014-2016

Learning the Interpretation of Point of Care Emergency Ultrasound Images. Kwan C, Boutis K, Fischer J, Pecaric M, Pusic M. **Academic Pediatric Association**. \$10,000 CAD. March 2014-May 2015

“My Child has Autism?”: Teaching developmental pediatrics residents to explore patient and family perspectives through a novel family facilitator-standardized patient educational model. Kawamura A, Mylopoulos M, Jimenez E, Orsino A, McNaughton N. **The AMS Phoenix Project, A Call to Caring Project Grant**. \$10,730 CAD. November 2013 – November 2014

Putting It All Together: Exploring the learning of integrated CanMEDS competencies. Woods NN, Mylopoulos M. 2013 RCPSC/Associated Medical Services. **CanMEDS Research and Development Grant, The Royal College of Physicians and Surgeons of Canada**. \$21,910 CAD. 2013-2015

Teaching Medical Error Disclosure Skills to Postgraduate Internal Medicine, Surgery and Pediatrics Trainees. Stroud L, Wong B, Coffey M, Atkinson A, Matlow A, Papia G, McDonald-Blumer H. **2012 Royal College/Associated Medical Services CanMEDS Research and Development Grant (AMS CanMEDS R&D)**. \$24,803 CAD. July 1-2012-January 1-2014

Through the eyes of the beholder: Understanding physicians’ conceptions of childhood obesity. Woods NN, Stenfors-Hayes T, Mylopoulos M. Continuing Education Research and Development Grant, **Office of Continuing Education & Professional Development Faculty of Medicine, University of Toronto**. \$3,687.50 CAD. 2013-2014

Uncovering and sharing evidence for compassionate care. Baker L, Ng St, Gold K, Martimianakis MA. **Associated Medical Services**. \$10,000 CAD. 2014-2015

Awards

POWER Teaching Awards

For outstanding contributions for Postgraduate Teaching

Dr. Patricia Parkin
Dr. Catherine Birken
Dr. Eddy Lau
Dr. Briseida Mema
Dr. Suzanne Talarico

Other Teaching/Education Awards

National

Ito, S: Winner of Distinguished Service and Education award Canadian Society of Pharmacology and Therapeutics, Winnipeg, Manitoba, June 2014

Jones, NL: Winner of the Education Excellence Award, Canadian Association of Gastroenterology, Toronto, Ontario, January 2014

Kawamura, A: Awarded Royal College Fellowship for Studies in Medical Education, Royal College of Physicians and Surgeons of Canada, Toronto, Ontario, July 2013

Schneider, R: Winner of the Paediatric Academic Leadership, Clinical Educator Award, Paediatric chairs of Canada, Ottawa, Ontario, 2013

University

Atkinson, A: Winner of the Harry Bain Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Bernhard, N: Winner of the R.H.A Haslam Preclerkship Teaching Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Berzen, A: Winner of the Undergraduate Community Teaching Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Birken, C, Hamilton J: Winners of the Outstanding Clinical Contributio Award: STOMP, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Cohen, E: Winner of the Junior Faculty Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Etoom, Y: Winner of the Postgraduate Community Teaching Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Grant, R: Winner of the Richard Rowe Award for Clinical Excellence in Paediatric Medical Care, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Kanani, R: Winner of the Lionel Weinstein Clerkship Teaching Award, Department of Paediatrics, University of Toronto, Toronto, Ontario, June 2014

Koltin, D: Winner of the Lionel Weinstein Clerkship Teaching Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Nofech-Mozes, Y: Winner of the Marvin Gerstein Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

McNamara, P: Winner of the Pediatric American Society Travel Award for Predictors of Post-Ligation Cardiac Syndrome in Neonates after Introduction of Targeted Milrinone Treatment, Pediatric Academic Societies Annual Meeting, Vancouver, British Columbia, 2014.

Morris, S: Winner of the PERLs Award (Paediatric Educational Resident Lecture Series Award), Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Martimianakis, MA: Helen P. Batty Award for Excellence and Achievement in Faculty Development in the category of Innovation in Program Development and Design (for the Qualitative Research Atelier), Faculty of Medicine, University of Toronto, Toronto, Ontario, 2013

Mylopoulos, M: Helen P. Batty Award for Excellence and Achievement in Faculty Development in the category of Innovation in Program Development and Design (for the Qualitative Research Atelier), Faculty of Medicine, University of Toronto, Toronto, Ontario, 2013

Schneider, R: Winner of the Charles Mickle Fellowship Award, University of Toronto, Faculty of Medicine, Toronto, Ontario, 2014

Wadhwa A: Winner of the Subspecialty Teaching Award, Department of Paediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, 2014

Divisional/Hospital: Faculty

Atkinson, A: Winner of The Harry Bain Award in 2014 for excellence in clinical teaching at the Hospital for Sick Children, Toronto, Ontario, June 2014

Atkinson, A: Nominated for the PAIRO Residency Program Excellence Award, The Hospital for Sick Children, Toronto, Ontario, 2013 - 2014

Avitzur, Y: Winner of the Teaching and Mentorship Award, Division of Gastroenterology, Hepatology and Nutrition, The Hospital for Sick Children, Toronto, Ontario, June 2014.

Bonifacio, J: Winner of the 2013 Marvin Gerstein Award for Excellence in clinical Teaching. Department of Paediatrics. The Hospital for Sick Children at the University of Toronto, Toronto, Ontario, June 2013

Bowdin, S: Winner of Margaret W. Thompson Award in recognition of teaching excellence, Division of Clinical and Metabolic Genetics, The Hospital for Sick Children, Toronto, Ontario, June 2014

Kempinska, A: Recognition for Excellence in Clinical Teaching, Division of Paediatric Emergency Medicine, The Hospital for Sick Children, Toronto, Ontario, June 2014

Koren, G: Winner of Faculty Mentorship Award, Department of Pediatrics, University of Toronto, The Hospital for Sick Children, Paediatric Medicine Celebration of Academic Excellence, Toronto, Ontario, 2014

Mendoza-Londono, R: Winner of Margaret W. Thompson Award – Excellence in Teaching, Toronto, Ontario, July 2013

Punnett, A: Winner of the Professional Development Program Award in the category of Field Practicum Preceptor, Department of Family and Community Medicine, The Hospital for Sick Children, Toronto, Ontario, April 2014

Schneider, R: Runner-up for the Department of Paediatrics Faculty Mentorship Award, The Hospital for Sick Children, Toronto, Ontario, 2014

Smile, S: 2013 Winner, Division of Developmental Paediatrics Faculty Teaching Award, Developmental Paediatrics, Department of Pediatrics, Faculty of Medicine, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Ontario, 2014

Weinstein, M: Colin R. Woolf Award for Teaching Excellence in Continuing Professional Development, Toronto, Ontario, 2014

Weiss S: Winner of the Continuing Medical Education Award, Department of Paediatrics, The Hospital for Sick Children, Toronto, Ontario, 2014

Divisional/Hospital: Residents/Fellows

Christopher Ondaatje Award

To a senior resident for excellence in clinical teaching as nominated by core paediatric residents

Dr. Joanna Humphreys (PGY3)

Dr. Michael Khoury (PGY4)

CanMEDS Award – Subspecialty Trainee

Dr. Adrienne Davis

Clinical Award – the Saunders Prize

Dr. Nicole Coles

Leadership in Education Beyond the Department of Paediatrics

Several of our faculty members currently hold key leadership positions in education beyond our department, demonstrating our growing capacity to inform educational practice more broadly.

Dr. Karen Leslie, Director of the Centre for Faculty Development, University of Toronto and St. Michael's Hospital

Dr. Jonathan Pirie, Co-leads the procedural lab in the SickKids Learning Institute's simulation program

Dr. Norman Rosenblum, Associate Dean, Physician Scientist Training, University of Toronto

Dr. Jay Rosenfield, Vice Dean of Undergraduate Medical Education, University of Toronto

Dr. Suzan Schneeweiss, Continuing Professional Educator for the Royal College of Physicians and Surgeons of Canada

Dr. Stacey Bernstein, Clerkship Director, University of Toronto

Dr. Rayfel Schneider, Member, National CaRMS Paediatric Subspecialty Match Steering Committee

Dr. Brian Simmons, Director, Standardized Patient Program, University of Toronto

Dr. Jonathan Kronick, Chief of Education of the SickKids Learning Institute, Chair of the Education Subcommittee and the Continuing Professional Development Committee of the Canadian Paediatric Society

Tina Martimianakis,
AMS Project Management Committee, AMS- Phoenix

AMS Lexicon Working Group
(Co-Chair with Rachel Ellaway), AMS - Phoenix Project

AMS Planning Committee for
2015 Phoenix Conference (Co-Chair with Susan Block)

Spotlight on Scholarship: Division of Paediatric Medicine

The Division of Pediatric Medicine is heavily engaged in core undergraduate, post-graduate and continuing education teaching, curriculum development, education scholarship and educational administration. Three pediatricians hold Masters of Medical Education (an additional one in progress), one has completed the Education Scholars Program, and one is in progress. More than 12 full and part-time Divisional faculty are involved in education scholarship/research projects. In addition to these faculty, those in the Section of Community Paediatrics make an invaluable contribution to teaching and other educational activities. The Division has a robust fellowship program, with an academic stream for those interested in graduate training in medical education. Over the last 12 years, the Division has graduated five fellows with Masters degrees in health professions education, and currently four academic fellows are pursuing a graduate degree in this area.

Scholarship has been identified within the Division as an emerging educational priority. To this end, a Paediatric Medicine education scholarship retreat was held on Feb 4, 2014. The objectives of the retreat were to articulate a vision and plan for education research/scholarship in the Division and to discuss opportunities for collaboration and optimization of available resources. All Divisional staff physicians and fellows were invited to participate in the retreat, and 13 attended, including representation from community pediatricians, undergraduate education, postgraduate education and continuing education. Dr. Tina Martimianakis, Director of Medical Education Scholarship, was invited to set the context and to participate in the discussion. The retreat agenda began with an overview of education scholarship and funding opportunities in the Department of Paediatrics by Dr. Martimianakis.

In preparation for the retreat, the Divisional education scholarship lead had identified 29 discrete ongoing education projects in the Division, with more than \$250,000 in funding. It was identified during the group discussion that Division members participating in education projects were not necessarily aware of others' academic activities and that these areas of focus often aligned with one another. A list of topics/ content areas was generated from the spreadsheet of education projects currently underway. Commonalities were identified and led to the development of a list of key themes, associated with theoretical underpinnings and methodologies, shown in the Table below.

CURRENT EDUCATION SCHOLARSHIP ACTIVITIES IN PEDIATRIC MEDICINE

TOPICS/CONTENT AREAS	THEMES	THEORETICAL APPROACH/METHODOLOGY	PROJECT EXAMPLES
<ul style="list-style-type: none"> Resident handoff Disclosure/safety Paediatrician as manager 	<ul style="list-style-type: none"> Quality/Safety Manager Competencies 	<ul style="list-style-type: none"> Health Systems/policy 	<ul style="list-style-type: none"> I-PASS Handoff Study Pediatrician as Manager Study
<ul style="list-style-type: none"> Paediatrician as advocate Social paediatrics Medical education and resource poor settings/vulnerable populations 	<ul style="list-style-type: none"> Health Equity/Social Responsibility Advocate Competencies Global Health 	<ul style="list-style-type: none"> Sociology of education Global health 	<ul style="list-style-type: none"> Teaching and Learning in Social Pediatrics Global Health Medical Education - Theory Building
<ul style="list-style-type: none"> E-modules Reflective reasoning and diagnostic accuracy Procedural skills Expertise building 	<ul style="list-style-type: none"> Mechanisms of Learning 	<ul style="list-style-type: none"> Cognitive science Simulation 	<ul style="list-style-type: none"> Pediatric Procedural Skills Study Dermatology E-modules

Some ideas stemming from the retreat include increased collaboration between members of the division based on education themes, sharing of available resources and research personnel, and a revised organization of education within the Division.

The Division, given its significant educational mandate, had previously developed an organizational structure, appointing leads for education for each level of learner

and each section of the Division. A lead for education scholarship was recently added to this group. It is hoped that the new lead for education scholarship, and the Pediatric Medicine education scholarship group: GEaRS: Group for Education Research and Scholarship, newly formed as an outcome of the retreat, will move the Division's education scholarship agenda forward. This group will be embedded within the larger Pediatric Medicine Research Team.

Student Advancement Research (STAR) Program 2015

Currently, there are limited opportunities and experiences for high school students from under-represented backgrounds and at-risk areas in the fields of healthcare and research. To address this disparity, a number of staff from the Research Institute have developed and successfully implemented a paid student research internship program at The Hospital for Sick Children (SickKids), under the outreach initiative, Standard Life Kids Science. This program was focused on recruiting students of Aboriginal or African heritage, as these minority groups currently lack the most opportunities in the fields of research and healthcare. Additionally, increasing the representation of both of these groups in medicine and research has recently emerged as a national imperative to create a more socially and culturally diverse health profession (Dhalla et al., 2002).

The inaugural year of the Student Advancement Research (StAR) program gave four high school students a chance to explore the research currently underway at SickKids over a 6 week period. By working in a wet bench lab or on a clinical research project at either the hospital or the Peter Gilgan Centre for Research and Learning, the students gained professional experience in a hospital environment under the guidance of graduate student mentors and principal investigators. The goal of this program is to provide students with a unique work experience during the summer.

At the end of the internship, the students share what they have learned by presenting their research project at the Research Showcase at SickKids. As participants of the StAR program, students also have access to other science career and research experiences through the Standard Life Kids Science program.

Under the leadership of Lisa Robinson, with coordinative support by Adrienne Wong, the first year of the StAR program was a complete success and Kid Science looks forward to future of this promising initiative.



Countries should place the well being of children at the top of their responses...not only is this a moral obligation but it is in the self-interest of societies.

– UNICEF, irc 12