Current highlights (J. Van Der Meulen)

1. Increasing use and sophistication of continuous blood glucose monitoring sensors – a necessary element in the move towards a closed-loop, artificial pancreas option.
2. Extensive work on trans-differentiation strategies whereby other cells e.g. pancreatic exocrine cells or islet alpha-cells are induced to differentiate into beta cells. This is very relevant to creating an endogenous supply of beta-cells for replacement of lost beta-cell function, whether in type 1 or in type 2 diabetes.
3. From the world of immunology, an increasingly sophisticated understanding of the factors governing the spectrum from tolerance to auto-reactivity, with implications for eventual modulation of the autoimmune response – a necessary co-requisite for any beta-cell replacement strategy.

C-MORE program (K. Morrison)

The MCH Children’s Metabolism Obesity Research and Education (C-MORE) program seeks to improve our understanding of the early origins of obesity and metabolic disorders and to improve our treatment of them. Ongoing studies closely linked with clinical programs within the Children’s Exercise and Nutrition Centre including the Pediatric Lipid clinic and the Growing Healthy Weight Management program allow accelerated translation of research findings into new and innovative treatment programs. Current studies include the Determinants of Change in Childhood Obesity (DECCO) study (funded by CIHR and Heart and Stroke Foundation) which is examining the biological, familial and psychosocial determinants for successful change over a 2 year period in 270 children enrolled in the weight management program. C-MORE is also the lead site for the newly developed CANadian Pediatric Weight management Registry (CANPWR) (funded by CIHR through CANNeCTIN) which is a multi-centre cooperation amongst the tertiary care weight management programs in Canada in an effort to capture key health indicators and potential determinants of these amongst children and youth enrolled in Canadian weight management programs. We are also one of 3 Canadian sites participating in
a qualitative study (led by Dr G Ball at University of Alberta, funded by CIHR) to understand attrition and engagement of families in pediatric weight management programs.

To better understand the early origins of obesity and associated health consequences we are conducting several studies in association with colleagues at McMaster. Working with colleagues in Psychology and Psychiatry, and as part of a consortium with Finnish investigators, Dr Saigal and Dr Morrison are examining anthropometry and cardiovascular and metabolic health of 30 year olds born with extremely low birth weight in a cohort started by Dr. Saigal over 30 years ago that continues to have 90% follow-up! Furthermore, the FAMILY study (PI Dr K Teo) is examining the early origins of adiposity and cardiovascular risk factors amongst 900 babies born in Hamilton and Burlington. Together these studies with their links to basic scientists at McMaster will assist us in understanding the development of excess adiposity and its health consequences and in improving the clinical care we deliver to these.

**Diabetes Research (K. McAssey)**

Simultaneous vs. Delayed Initiation of REAL-Time Continuous Glucose Monitoring in Children and Adolescents with Type 1 Diabetes Starting Insulin Pump Therapy (CGM-TIME trial)

REAL-Time Continuous Glucose Monitoring (RT-CGM) improves diabetes control in adults with type 1 diabetes. However, studies of RT-CGM in children and adolescents have been mostly negative. The lack of effectiveness in the pediatric population appears directly related to adherence to RT-CGM, i.e., the willingness of children and teens to wear and use this technology. Most previous RT-CGM studies have focused on experienced pump users or children with new-onset diabetes. At the time of pump initiation, children and adolescents who have been living with diabetes (and their parents) are highly motivated to make changes in their diabetes management and to take on additional responsibilities to improve their diabetes control and lifestyle, the two primary reasons for initiating pump therapy in the pediatric population. This study examines the hypothesis that readiness for making changes in diabetes management will be greater at the time of pump initiation than at six months after the pump start. Further, readiness for change at the time of RT-CGM initiation may predict future adherence to RT-CGM and its effectiveness.

Sponsors and Collaborators: JDRF Canadian Clinical Trials Network, Children’s Hospital of Eastern Ontario

Participating Sites: McMaster Children’s Hospital, Hospital of Sick Children, London Health Sciences, Markham Stouffville Hospital, CHEO

**Pediatric clerkship program (K. McAssey)**

The pediatric clerkship is necessarily the leading opportunity for undergraduate pediatric education since all students in the MD Program at the Michael G. DeGroote School of Medicine complete six weeks of pediatric training during their clerkship. During this academic year, 198 students participated in the pediatrics clerkship in Hamilton and the satellite campuses of Waterloo and Niagara. Members of the Department of Pediatrics contribute extensively to undergraduate pediatric education. Subspecialty members of the Department function both as tutors in the clerkship, preceptors in subspecialty clinics and also provide focused subspecialty presentations on the academic day of the clerkship rotation, which occurs every Friday. Educational experience in the Clinical Teaching Unit at McMaster Children’s Hospital is provided by Academic General Consultant Pediatricians. General Consultant Pediatricians in locations throughout Ontario provide unparalleled breath of pediatric experience student placements
Constantine Samaan joined the division of Pediatric Endocrinology in 2010 as a Clinician Researcher. He completed his fellowship training in Pediatric Endocrinology at Sick Kids Toronto, and his research training at St. Jude Children Research Hospital in Memphis, USA as an International Research Scholar and program in Cell Biology at the University of Toronto.

Constantine’s research is in the area of Immunometabolism with specific focus on obesity and inflammation. Using mouse models and human samples, he studies the interaction between the immune system and metabolic organs including muscle and adipose tissue, and how this leads to inflammation in obesity, and how inflammation then leads to insulin resistance, an early step to type 2 diabetes. The aim is to offer mechanistic insights for this interaction, which will help the design of therapeutic and preventative strategies to help stem the rising rates of obesity.

Next Event – Please mark your Calendar!

Grand Rounds on January 19th 2012 will feature an invited guest speaker, Scott Howard. Scott is the Chair of Pediatric Oncology in Developing Countries (PODC) Committee at SIOP and Director of Clinical Trials, and International Outreach Program at St. Jude's Research Hospital in Memphis.

Following this special round there will be a lunch at 12.30 pm in 3A14 and second Global Health Initiative Meeting at Mac.

Comments/Suggestion

Please send any comments or suggestions by e-mail to Katrin Scheinemann at kschein@mcmaster.ca