

Message from the Scientific Director

We hope you are all enjoying a delightful spring, or at least the emergence from winter!

We are pleased that we can now bring you a regular newsletter, and are gratified that we are beginning to generate some discussion and feedback from our research community and partners.

With this issue, we are particularly pleased to bring you an update on The Multidisciplinary Research Training Program in Digestive Sciences at



Dr. Diane T. Finegood

Queen's University in Kingston, funded by INMD four years ago. This specialized training

program has already added significantly to the number of highly qualified GI researchers.

The research of a young clinician scientist, Dr. Jill Hamilton, based at the Hospital for Sick Children's in Toronto, is also featured. Read about her work with infants who are born to mothers with gestational diabetes, and with young people at high risk of developing diabetes following cancer surgery.

In the area of news, we have included, among

others, articles on the newly-established Canadian Obesity Network and the funding of projects for analysis of nutrition information released last year in the Canadian Community Health Survey.

We are also happy to introduce you to two new members of our Institute Advisory Board. In the fall, we will tell you more about changes to our board.

Have a great summer!



Analysis of CCHS nutrition data underway

Seven of 21 applicants have been awarded one-year grants to analyze data from the Canadian Community Health Survey on Nutrition, a joint initiative of Statistics Canada and Health Canada, released in 2004. The survey was the first to provide national nutrition data in more than 30 years, and provides information at both the national and provincial levels on food intake, food groups, nutritional supplements, nutrients, eating patterns, physical activity, body mass index and household food security. Successful applicants will analyze the data to improve the availability of evidence for decision-making. Results of the request for applications, funded by Statistics Canada and INMD, were released last month. Successful principal applicants and their proposals were:

P.I.	Location	Research Proposal	Co-Applicants
Lise Dubois	University of Ottawa	Social inequality and nutrition in children 1 to 8 years old in Canada	None
Natalie T. Glanville	Mount St. Vincent University (Halifax)	Impact of diet quality on body mass index: interrelationship among food choice behaviours, physical activity and food security status	Heather L. Hobson, Lynn McIntyre
Katherine A. Gray-Donald	McGill University (Montreal)	Risk factors for nutritional inadequacy and suboptimal food choices	Malek Batal
Kim D. Raine	University of Alberta	Health status of Canadian immigrants: an analysis of dietary and physical activity patterns	Helen Vallianatos, Paul Veugelers Jr.
Valerie S. Tarasuk	University of Toronto	A critical examination of nutrition disparities in Canada	Laurie E. Ricciuto
Susan J. Whiting	University of Saskatchewan	Analysis of nutrient and food intake of Canadian children in relation to chronic disease prevention	Syed M. Shah, Hassanali Vatanparast
Noreen D. Willows	University of Alberta	Prevalence and correlates of food insecurity in aboriginal peoples living off-reserve	Linda J. McCargar, Kim D. Raine, John C. Spence, Paul J. Veugelers

RESEARCHERS:

Training program boosts GI research capacity

“There has never been a better time to think about a research career in digestive science,” states a banner on the home page of the Gastrointestinal Diseases Research Unit (GIDRU) at Queen’s University in Kingston, Ontario. “And,” it continues, “there is no better place to do it than Queen’s University.”

About ten years ago, the Canadian Association of Gastroenterology concluded that there was not enough research support in this field, given the



Dr. William Paterson

large economic burden of digestive diseases in Canada.¹ Examples of some of these diseases are cancers that develop anywhere from the oral cavity down through the alimentary tract, inflammatory bowel disease, chronic liver disease, pancreatitis, ulcers, reflux disease, and dyspepsia.

As gastroenterologist Dr. William Paterson, a member of GIDRU points out, “Probably one of the reasons digestive disorders research has been low priority is that these diseases don’t suddenly kill you. But they do cause chronic symptoms that can be debilitating. For instance, inflammatory bowel disease usually starts when people are in their 20s and 30s. Then it’s something they have for the rest of their lives, and they have frequent flare-ups and need to be followed carefully by specialists. The drugs for treatment are extremely expensive, plus people often end up requiring surgery and recurrent hospitalizations. Another more common disorder, Irritable Bowel Syndrome, can be also quite

debilitating.” Based on a U.S. study, this condition is second only to the common cold as the most frequently cited reason for people to miss work, he says.

“The point is that there are a lot of diseases that arise from the digestive tract that people are silently suffering from, and that are seriously impairing their quality of life.”

This is what led Paterson and others at GIDRU, a collaborative mix of clinicians and biomedical scientists spanning the fields of biology, medicine, surgery, pathology, immunology, microbiology, physiology, pharmacology and epidemiology, to submit a six-year funding proposal to CIHR in 2002. Funding was granted for the “The Multidisciplinary Research Training Program in Digestive Sciences”.

The program took some unexpected turns at the beginning.

Paterson explains, “We thought we’d be able to get high-quality MSc and PhD students, and post-doctoral fellows, but we discovered that because digestive disease is rather low-profile, a lot of students were geared towards going into other disciplines.”

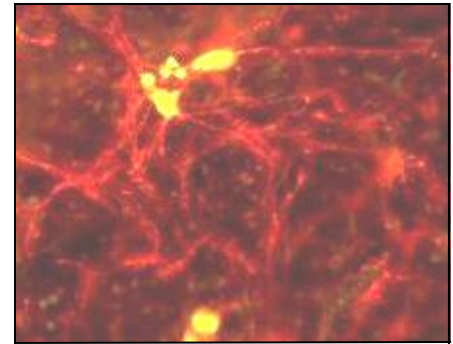
So the GIDRU team concentrated on generating interest in undergraduate students.



Sub-mucosal plexus from rat colon

“We devoted resources to summer studentships. We targeted students in second or third year in a life sciences or biology program, and we got them into the lab. Often they would do two

summers with us. It worked very well. In the last two years, we’ve had outstanding students. It’s actually highly competitive to get into the summer studentship program now. And a number of those people have stayed



Enteric neurons in co-culture

with us, and are now MSc or PhD students.”

As well, the program has attracted some post-doctoral fellows, including some extending their training after clinical training. Several medical doctors have been through the program. A report submitted to CIHR last year at the half-way point of the program noted that more than 50 people had already received specialized training.

Although the program extends beyond Queen’s University to some extent, Paterson says purchase of state of the art equipment enabled by a Canadian Foundation for Innovation grant has made it largely unnecessary. In addition, GIDRU has had more than 25 years to develop as a collaborative team.

“Since the early ‘80s when we established the unit, we’ve been a close-knit group. I think one of the strengths of the program is that trainees see this interaction between clinical medicine and basic science and how the two are really inter-related and inter-dependent.

“In our weekly research and progress meetings, even when talking about the

[continued next page](#)

Training program...

most basic technique or approach, we always consider how this is relevant to a patient. Our goal is to provide critically-thinking scientists who not only have technical skills, but also know how to ask the right questions.”

Trainees do appear to benefit from this approach. In the words of Ron Wells, “When I started in the graduate program at Queen’s I was overwhelmed, but members of the GIDRU helped me adjust and made me feel like a member of the group.

“It was a lot of fun, and the years seemed to fly by. If I had expectations going into the program, then the GIDRU exceeded all of them manifold. I finished my PhD last year and have published five articles and currently have five more submitted or in preparation. I now work for Holburn, a gastrointestinal drug design and development company.

“I am obviously biased, but I think the GIDRU program is critical for intestinal research in Canada. Of all the students of GIDRU that I had the opportunity to get to know, most of them have remained in the field and

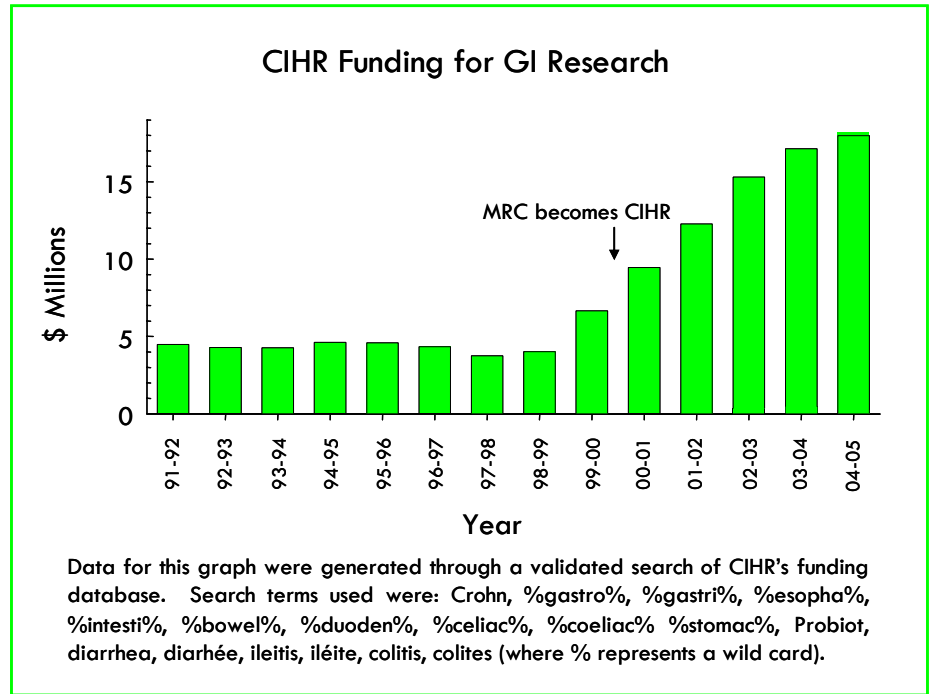
are actively pursuing intestinal research, medicine, or are in industry. I don’t know of anyone who would say they had a negative experience.”

As for the future of the program?

Paterson says, “I think our priority will be clinician scientists. Specifically, I would love to get people who’ve

completed their training in clinical gastroenterology, and have them do meaningful postdoctoral fellowships, then use that as a stepping stone to academic careers. We really need those people in Canada.”

1. Beck, IT. Birth of the Canadian Digestive Health Foundation. Can. J. Gastroenterol. 18: 29-37, 2004.



Grants and Awards Guide has been updated

Two updates were made to the 2005-2006 Grants and Awards Guide early this year.

Section 1-A4: Gender and Sex-Based Analysis was added which states: “Applicants are encouraged to demonstrate the use of gender and sex-based analysis (GSBA) in applications. GSBA is an approach to research which systematically inquires about biological (sex-based) and sociocultural (gender-based) differences between women and men, boys and girls, without presuming that any such differences exist. The purpose of GSBA is to promote rigorous health

research which expands understanding of health determinants in both sexes and results in improvements in health and health care.” Section 3-A10.2:

Compensation-Related Expenses was clarified to state that salaries for research assistants and technicians are also an eligible expense.

The 2005-2006 Grants and Awards Guide and the summary of changes can be found at: <http://www.cihr-irsc.gc.ca/e/805.html>.

We’re looking for a few good researchers!

With this issue we celebrate delivery of a regular newsletter for one year, and we are pleased to be receiving feedback on our efforts. We are even more pleased that members of the INMD research community are beginning to think of us when a paper is accepted for publication or a new network gets underway. We love to hear from you!

We are committed to disseminating research information and news that falls within our mandate. As well as this newsletter, we are able and willing to explore other avenues with CIHR to generate publicity. One of our goals is to help create connections between researchers, clinicians, policy-makers and the general public. You can

help us immensely if you give us a call or send an email when you have something to share. Then we can go to work for you!!

Contact Nola Erhardt at 604-268-6722 (English) or at inmd_communications@sfu.ca (English or French).

And we thank you so much in advance!



RESEARCHERS:

Studying small groups at high risk for diabetes

Type 2 diabetes (T2D) has been referred to as “late onset” diabetes, because it tends to afflict older generations. However, statistics now show a trend towards an earlier age of onset, creating concern about the potential impact on future health care costs, and a predictable decrease in quality of life for Canada’s next generations.

Although a major risk factor for T2D is obesity, it is a complex disease involving environmental and genetic factors. This sparked researcher Dr. Jill Hamilton to propose two research projects to study two unique populations. One will examine the effects of exposure to different levels of blood glucose and chemical messengers related to insulin resistance in the infants of mothers with gestational diabetes, a group known to have increased risk of developing obesity and T2D. Another will test new drug therapy for those born with a rare brain tumour for which treatment leads to a greatly elevated risk of obesity and T2D. Her hope is to elucidate basic mechanisms that lead to the disease, and improve treatment options.

Hamilton received funding from INMD for both studies. “Insulin Resistance and Beta Cell Function in Early Childhood: the Role of Maternal and Infant Metabolic Risk Factors” was funded in 2005. “Combined Diazoxide and Metformin Therapy in Children with Hypothalamic Obesity Secondary to Craniopharyngioma” was funded in 2006.

From her office at the Hospital for Sick Children in Toronto, she explains that location was one ingredient that allowed her to propose both investigations.

The study of infants is linked to ongoing research on women with gestational diabetes (also funded by INMD), which involves several researchers, including co-primary investigator Anthony Hanley and co-investigators Ravi Retnakaran and

Bernard Zinman at the Hospital for Sick Children and Mount Sinai Hospital.

“I know the researchers, so I approached them about studying the offspring. I thought it was a great opportunity to link the maternal factors with offspring growth and development, and early risk for diabetes.”

Her desire to undertake this work stems from evidence of the importance of the intrauterine environment not just



Dr. Jill Hamilton

to development, but to risk of disease after birth.

“To give a specific example, insulin resistance in peripheral tissues develops in a baby that is starved *in utero* to allow for shunting of vital nutrients such as glucose to critical organs such as the brain, and the effects of this ‘reprogramming’ of insulin resistance persist after birth. It allows survival, but may not be adaptive once they’re in an environment where they have an abundance of nutrients. These babies go on to develop the most adverse metabolic profiles later in life.”

Hamilton’s hypothesis is that infants exposed to abnormalities related to

maternal diabetes will themselves demonstrate early abnormalities. To test this, she will take anthropomorphic measurements from infants at three months and 12 months. Changes in adiposity will also be monitored. At one year of age, she will also take blood samples. Insulin resistance, beta cell function, and various adipocytokine and inflammatory biomarkers will be analyzed in conjunction with exposure to maternal levels of glucose intolerance, adipocyte dysfunction and sub-clinical inflammation.

Hamilton has now recruited about 100 of the approximate 300 infants she wants to study. The work is already challenging on one level.

“Working with kids at three months is pretty easy – they’re not very mobile. At 12 months it’s a little trickier. They’ve been used to waking up in the morning and having their bottle right away, and the shock of having to come to the hospital fasting instead is the biggest challenge overall.” She adds, “The mothers are great about it because they’ve already been recruited into the maternal study, and they’re committed to this research. That’s been a very positive experience.”

The second study Hamilton has initiated, investigating effects of drug therapy to control progression to T2D in craniopharyngioma patients, is also possible largely due to her location. This is a rare tumour, but because Sick Children’s Hospital is a referral centre, she can gather a large enough cohort to study.

The tumour arises in the pituitary region, a result of tissue which would normally be resorbed during development. It is benign, but can extend to the hypothalamic region of the brain, which contains appetite and energy homeostasis control centres. Usual treatment is surgery, which often damages these centres, resulting in hyperphagia and/or insulin

[continued next page](#)

Studying...

hypersecretion, if nerve connections to the pancreas are also damaged.

A preliminary paper, published in the *Journal of Pediatric Endocrinology and Metabolism* in February, reported that 58% of children who underwent surgery became obese within about six months, after which their weight stabilized. In an attempt to treat this sudden weight gain, Hamilton will recruit eight non-diabetic, morbidly obese young people who have had this surgery. Her hope is to reduce their body mass index, and control a tendency of progression to insulin resistance and T2D. She will test two drugs in combination: diazoxide decreases insulin secretion, and metformin increases insulin sensitivity. The drugs will be used together because "there is a concern that if you drop the insulin secretion too much they will develop diabetes. That's why we want to use diazoxide with metformin, because metformin can decrease hepatic gluconeogenesis and improve insulin sensitivity."

Can this study shed light on processes that could help others without such a rare disease? Hamilton thinks so.

"Patients with craniopharyngioma may be an extreme example of a mechanism of weight gain applicable to the general population – namely exaggerated insulin secretion in response to carbohydrate intake. It could have relevance for larger populations as we start to understand more about the different ways that obesity evolves."

The study could mean even more to those who suffer from the disease. In a 12-year follow-up of patients who had surgery for craniopharyngioma, there was a reported 3.2-fold increase in death attributable to cardio- and cerebrovascular events.

Hamilton says, "As a clinician I am very excited to be doing this study because I treat these children and I see first-hand the suffering and morbidity they experience. It's really important for me to feel like I'm looking into their problem and helping them manage their disease."

New Investigator Awards Program renewed by The Obesity Society

The Obesity Society is committed to the education and training of new investigators.

In 2006, the Society is strengthening this commitment by renewing the New Investigator Awards Program.

Awards will be provided to four new investigators, defined as individuals who have received a doctorate in the past five years and who currently hold full-time, entry-level positions (e.g., post-doctoral fellow, instructor, or assistant professor) at established

academic/research institutions.

Applicants may request up to \$25,000. An initial one-page letter of intent should be submitted electronically for review by an interdisciplinary committee. The deadline for submission of the letter of intent is **May 19**.

For more information about eligibility guidelines and the application process, please visit the New Investigator Awards Program Web site at <http://www.naaso.org/notices/nia.asp>.

E-Alert provides links to variety of activities

Researchers who would like updates on news and activities from CIHR are invited to visit <http://www.cihr.irsc.gc.ca/e/26626.html> to gain access to CIHR's E-Alert Newsletter. The newsletter also includes a variety of links to stimulate interest in the activities of other CIHR institutes and non-governmental organizations.

HOW TO GET IN TOUCH WITH US:

CIHR Corporate Headquarters

160 Elgin Street,
Room 97,
Address locator: 4809A
Ottawa, ON
K1A 0W9
<http://www.cihr-irsc.gc.ca/e/9833.html>

Institute of Nutrition, Metabolism and Diabetes

Room WMC2805,
Simon Fraser University
8888 University Drive,
Burnaby, BC
V5A 1S6

Tel: 604-268-6707; Fax: 604-291-3055
<http://www.cihr-irsc.gc.ca/e/12043.html>

Newsletter: inmd_communications@sfu.ca (Nola Erhardt)
General Information: inmd3@sfu.ca (Meena Bagri)



Diversity is the keyword for INMD's Advisory Board

Although they share an interest in nutrition and obesity, the backgrounds of Laurie Anderson and Robert Haché, INMD's two newest Institute Advisory Board (IAB) members, are very different. But it is this variety in training, experience and expertise that current members of the board welcome.

Says six-year member Doug Philips, "The board by definition has to be diverse; that diversity is a real strength." Kim Raine, who has also been an IAB member since INMD's inception, agrees: "People just have to relax and recognize that their expertise and experience is valued and that's why they're here – to share, to participate, and to be open to learning new things."

Anderson and Haché were invited onto the board to replace Pat Brubaker and Michael McBurney, who recently retired after six year terms.

Brubaker is an endocrinology researcher who has focused her work on the function of pancreatic and intestinal hormones. She has recently moved some of her research program into the study of obesity.

McBurney has contributed to Canada's research agenda through academic appointments at the University of Toronto and the University of Alberta, and is now head of the Department of Nutrition and Food Science at Texas A&M University.

Laurie Anderson is a U.S.-based scientist, who is an

affiliate professor of epidemiology in the School of Public Health at the University of Washington. For several years she has been working with the U.S. Centers for Disease Control and Prevention, supervising



Dr. Laurie Anderson

systematic reviews that are shaping a *Guide to Community Preventive Services*.

"In my earlier work I focused more on epidemiology and the determinants of chronic disease," she explains. "A lot of my work now is focused on nutrition and obesity interventions, on trying to find the most effective interventions to counter those determinants. It's been an interesting shift.

"Probably a real eye-opener was finding that so much more attention and research dollars have been put on defining determinants, and not nearly as much has been invested in research to evaluate effective interventions. Now we're all being asked to use evidence-based practices and we're starting to realize that we need more investment in interventions research. We're finding insufficient evidence in so many critical areas."

Robert Haché is a professor in the Departments of Medicine, Biochemistry, Microbiology and Immunology at the University of Ottawa and a senior scientist with the Ottawa Health Research Institute. He is also Vice-Dean (Research) of the Faculty of Medicine, and CIHR's delegate at the University of Ottawa.

Haché is a biomedical researcher, and his interests focus on the cellular and molecular control of gene expression and on the movement of proteins between the nucleus and cytoplasm. A key area of study he is currently supervising involves delimiting the molecular basis for the effects of



Dr. Robert Haché

glucocorticoid hormones on the differentiation of preadipocytes into mature fat cells.

"We're looking at the capacity for new adipocytes to form and how glucocorticoids, which are stress hormones, affect the process. Glucocorticoids are remotely synthesized in a way that impacts adipocyte development, and they're locally synthesized within white adipose tissue to

contribute to downstream metabolism in the cells."

Although Anderson and Haché became aware of INMD in different ways, they share similar reasons for choosing to participate, and both view this as a chance to grow as well as to contribute.

"Most of my research funding comes from CIHR," explains Haché. "And INMD is the Institute that's most related to my long-standing research interests, so that was a motivating factor. Being involved and contributing to the development of the Institute is an important component of being part of the research community. And contributing to the development of CIHR is another way to have an impact on research.

"My expectation is that I'll be able to contribute some ideas to the development of this Institute, to have some impact on the directions that are taken, through dialogue and through bringing ideas to the table. And I'm certain I'll learn a lot."

Anderson had her interest in the board piqued through an interaction with Scientific Director Diane Finegood.

"One of the reviews that we did for the community guide was on nutrition, and Diane was on the consultation team, so it was through her that I became aware of the work being done here. I'm very pleased to be a part of this. The reviews that I'm doing now are on obesity

[continued next page](#)

Network to provide a range of support for researchers

The newly established Canadian Obesity Network (CON), funded by the National Centres of Excellence program, aims to become the primary Canadian network of researchers, health professionals, young professionals, and other stakeholders who share an interest in obesity. CON's website, a visual statement of the organization's overall mission, is a dynamic portal linking viewers to a cornucopia of constantly changing information - from daily media stories, to research interests of members, to emerging opportunities for funding. The interactive site went live late last year after six months of organizing and lobbying by Network Director Dr. Arya Sharma.

In Sharma's words, "We want to make this an obesity website that will connect as many people as possible to create a real sense of community in this area, with an end goal of building capacity for more

and better research that will enhance the effectiveness of policy decisions. Also, we want to involve the public to the extent of eventually providing them with a site that will meet many of their educational needs."

The first step towards accomplishing CON's goals will be to expand the membership so that a clearer picture emerges of "who is who, and who does what" in the field of obesity research in



Canada, says Sharma. Currently, membership is open to researchers, health professionals and other professional stakeholders with an interest in research, prevention and management. It is not required that the work of members focuses primarily on obesity, but simply that obesity is in some way important to their work.

Joining the network is as easy as logging in (<http://www.obesitynetwork.ca>) and contributing a small amount of information about yourself and your interests. This gives you the privilege of posting events, news articles and links to websites. Also, you can take part in discussion groups. Sharma says although the network is still in its infancy, the developing site is already

generating a lot of activity.

"We are probably getting about 150 hits a day by people just coming in to read the news items," he explains. Employment opportunities and the events calendar are also well-read. The network is now featuring researcher profiles, and will expand to include overviews of biotechnology companies, health teams and other supporters of the Network.

To oversee organization of the Network, Sharma enlisted the assistance of four theme area coordinators who have expertise in the categories of: environmental and socio-cultural factors; behavioural and biological determinants; prevention, treatment and rehabilitation; and health economics and policy. Numerous section heads were recruited from universities across Canada, with specialized knowledge in more specific areas such as ethnic and gender studies, genetics, mental health, and surgery.

"The current members include the majority of obesity researchers in Canada," says Sharma. "Engaging these experts in working together towards reducing the economic, mental and physical burden of obesity for all Canadians constitutes the prime vision of the Canadian Obesity Network."

Long-term goals of the Network include advocating for increased funding, knowledge

translation activities, providing opportunities to establish collaborative, trans-disciplinary research as well as training and support programs, and



Dr. Arya Sharma

providing an infrastructure for dissemination of educational resources and data for health care planning. Within the larger organization, CON hopes to provide a forum specifically for those who are new to the field, to gain peer support and organize events specifically to meet their needs.

In the longer-term, gleaning more information from members will be necessary to enhance all these possibilities.

Institutions and organizations committed to support CON to date include 90 universities, government ministries, hospitals, health care networks, non-governmental stakeholders, and industry groups. This large and diverse group has the potential, Sharma says, to establish collaborative efforts that could not be realized if each were working alone, and this could be one of the real strengths of the network.

Diversity...

prevention and control and they're focused on four different settings – worksites, schools, community-wide interventions, and interventions to change health care systems. I think that I can bring some of that information to the board and share that.

"I think I will take away a great deal too, that will help me with my work in the States with our strategic planning for the population there. It could be a very good exchange I think."

INSTITUTE OF NUTRITION, METABOLISM AND DIABETES

MEETINGS AND CONFERENCES:

- 16th Workshop of the European Childhood Obesity Group** June 1-3, 2006
Rzeszow, Poland
<http://www.ecog2006.medforum.pl/>
- International Society of Behavioral Nutrition and Physical Activity Conference** July 13-16, 2006
Boston, MA
<http://www.isbnpa.org/>
- Second Annual Obesity Drug Development Summit** July 27-28, 2006
McLean, VA
http://www.cbinet.com/show_conference.cfm?confCode=HB650
- Second International Course of Obesity** Aug. 17-19, 2006
Mexico City, Mexico
<http://www.endocrinologia.com.mx>
- International Congress of Obesity Conference** Sept. 3-8, 2006
Sydney, Australia
<http://www.ico2006.com/Default.htm>
- 42nd Annual Meeting of the European Association for the Study of Diabetes** Sept. 14-17, 2006
Copenhagen-Malmoe, Denmark-Sweden
<http://www.easd.org/>
- Bariatric Summit** Sept. 17-19, 2006
Amelia Island, FL
<http://www.bariatricsummit.com>
- 1st Conference on Recent Advances in the Prevention and Treatment of Childhood and Adolescent Obesity** Oct. 5-7, 2006
Vancouver, BC
<http://www.interprofessional.ubc.ca>
- Canadian Diabetes Association/Canadian Society of Endocrinology and Metabolism: Professional Conference and Annual Meetings** Oct. 18-21, 2006
Toronto, ON
http://www.diabetes.ca/Section_Professionals/profconference.asp

INMD FUNDING OPPORTUNITIES:

Travel Funding

INMD has launched a new funding initiative for post-doctoral fellows, new investigators, and doctoral students. This initiative will provide funding for travel to conferences, symposia and workshops to present research. Application deadline is June 1, 2006. For more information please visit our website or contact Charlene Phung at inmd_projects@sfu.ca.

Please visit our website at <http://www.cihr-irsc.gc.ca/e/13521.html> for constantly changing information on Conferences and Meetings, and INMD Funding Opportunities.

