

THE DIABETES Communicator

Nov/Dec 2009



EDITORIAL

Notes from the 20th World Diabetes Congress

Colleen Rand RD CDE

Editor-in-Chief, The Diabetes Communicator

SPECIAL IDF ISSUE

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For me, the Canadian Diabetes Association Professional Conference and Annual Meetings spark energy and renewed enthusiasm, as leaders in the field — sharing a common passion — come together. This year marked the only time in my memory, and likely my remaining career, that the Association conference was suspended to accommodate the International Diabetes Federation (IDF) congress, which was held in Montreal this past October. Almost 13,000 delegates from more than 120 countries converged on Montreal, Quebec, to take part in all the congress had to offer. It was truly awe-inspiring to see, meet and talk with people from all corners of the globe who are committed to the advancement of the science, education and service delivery of diabetes. It was also very humbling to hear how hard diabetes educators in developing countries work to overcome the significant and pervasive barriers to diabetes care, education and support. The most vivid memory of the congress for me involved the heart-wrenching videos that were shown in the “Global Village” on the plight of families with children in remote and developing nation. Please read Tracy Everitt’s article (page 9) on the innovative support and friendship that the Central Alberta Diabetes Educator Section (DES) Chapter offered to a diabetes educator from Cameroon.

An area of emphasis at the congress was the identification and treatment of prediabetes; indeed, it was the topic of several concurrent sessions and at least one plenary lecture. It seems that the world is looking earlier for diabetes and working harder at lifestyle interventions that can prevent or delay people from being diagnosed with the disease. On page 7, Sandy Kostyniuk tells us of Canada’s efforts with a modified diabetes assessment tool called CANRISK.

We also hope that you enjoy articles with an international feel from Elaine Cooke (page 11) and Marilyn McInnes, who explores the link between the use of insulin glargine and the risk of developing cancer (page 5).

The efforts of one DES member at the congress cannot go without mention. Kathryn Arcudi, DES Conference Co-Chair, did a spectacular job organizing an army of volunteers, who also acted as ambassadors at the IDF congress. Even on the last day, Kathryn was smiling and in good humour! For her efforts, she was awarded the Distinguished Volunteer Service, National Level. Congratulations to Kathryn on receiving this well-deserved recognition.

“Almost 13,000 delegates from more than 120 countries converged on Montreal, Quebec, to take part in all the congress had to offer.”

One lovely perk of the annual diabetes conference has been the extracurricular social activities that promote a sense of fun and belonging, and which offer national networking opportunities. The IDF was no different; the most remarkable event that I have ever attended was held at the Notre Dame Basilica and featured the Montreal Gospel Choir. It was an international celebration of music in what felt like the inside of the most beautiful Fabergé egg!

Finally, some news about *The Diabetes Communicator* editorial board and the productive

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Ad goes here

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FROM THE CHAIR'S DESK

Heading into 2010

Aileen Knip RN BScN CCHC(c) CDE

Chair, Diabetes Educator Section



I am excited to address you as the incoming Chair of the Diabetes Educator Section. I plan to use this column to share with you what is happening at the National Executive and within our membership.

As many of you know, Canada was the host nation of the International Diabetes Federation's 20th World Diabetes Congress in Montreal this past October. I hope you had the opportunity to attend this enjoyable and informative congress. It was amazing to see almost 13,000 scientists, researchers, physicians, nurses, dietitians and allied healthcare professionals from more than 120 different countries attending this international event. Special thanks to Katherine Arcudi, DES Conference Co-chair, and her team. This was a huge undertaking that involved many hours of planning – congratulations on a job well done!

Once again we had great representation at the DES annual general meeting, which was held during the congress with 600 members in attendance. Some of the most exciting moments of the annual general meeting are the awards presentations. The DES is fortunate indeed to have such a talented membership. Kim Twyman, Director of Professional Education, elaborates below on the awards.

I wish to take this time to thank past DES

executive members Arlene Kuntz, Claire Lightfoot and Jan Cochrane for their expertise. I look forward to working with our new executive: Jan Cochrane (Chair-Elect), Anne Garrett (Director of Membership), and Rita Fitzgerald (Director of Quality). A special thanks also to Association staff, who provide invaluable assistance.

As this is my first column as Chair, I'd like to share some background about myself. I have been on the DES Executive since 2004; I held the position of Director of Quality for three years and was Chair-Elect for the past two years. I obtained my Diploma in Nursing in 1979, my BScN in 2001 and will have my MN completed by 2010. I have been in diabetes education and management for 16 years and am presently working in a primary care practice at the Grand Bend Area Community Health Centre, in Ontario, as an advanced practice nurse.

Change is in the air, and there will indeed be some changes to *The Diabetes Communicator* as well. We will be reducing the number of issues per year from six to four, however the issues will each be four pages longer than currently, and will be bursting with lots of great practice-based information, as always! The September/October 2009 issue of the *Communicator* contained a note regarding online and electronic communication to DES members, which requires further clarification. The note indicated that "all mailings will be electronic." This, however, does not pertain to the *Communicator*; at this time it has not been proposed that the *Communicator* become an electronic publication in 2010.

I am honoured to be leading the DES. These are challenging times for all with the economy and with the increasing epidemic of diabetes. As diabetes educators, I am sure we will all rise to the challenge.

~~~~~  
Kim Twyman, Director of Professional Development, writes: The September/October 2009 issue of the

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## LETTER TO THE EDITOR

I am writing to comment on the article entitled “Innovation, Inspiration and Integrated Approach,” (Linda Siminerio and Philip Home; *The Diabetes Communicator*, January/February 2009, page 8). In that article, the authors wrote: “The work of Banting, Best, MacLeod and Collip in the early 1920s marked one of the most significant moments in medical history; the first person with diabetes to receive an insulin injection, 14-year old Leonard Thompson, was treated in Toronto.” I suggest that you add the names of Dr. W.R. Campbell and Dr. A.A. Fletcher to the list of Banting and colleagues. While the discovery of insulin is indeed significant, its successful application to the human race could not have been accomplished without the clinical trials conducted by clinicians Campbell and Fletcher alongside Banting.

Leonard Thompson’s physician was Dr. Walter Campbell. It was Dr. Campbell who obtained permission from Leonard’s father to have him participate in the trial of Banting’s pancreatic extract. Reflecting on the announcement of the initial results of insulin 25 years later, Dr. Campbell gave a speech to the American Diabetes Association in 1946 entitled “The First Clinical Trials of Insulin,” (1)

### In which he noted:

*“The situation created in the medical world by the discovery of insulin was, I think, unprecedented...The necessity for expanded clinical facilities was immediate and pressing. With Professor Graham directing, a clinic was formed to carry further the clinical investigations, with Banting, Fletcher and I taking charge of the patients. We worked together literally night and day and Professor Graham was not the least tireless of the group. It was absorbing work and each day someone in the laboratory or the clinic had a new fact to add — a new hypothesis to test. The pooling of facts and ideas was an important element in the rapid progress in both laboratory and clinic...Less than a year after the initial decision to investigate the clinical merits of Banting’s pancreatic extract, we had fifty cases under investigation.”*

Let us not forget to collaborate with our colleagues. Shared knowledge could lead to greater discoveries, and perhaps even a cure for diabetes!

G. Ann Ward, BScN RN  
(DES member and daughter of Dr. Walter Campbell)

## THE EDITORS RESPOND

### In the introduction to his book *The Discovery of Insulin* (2) Michael Bliss writes:

*“The discovery of insulin at the University of Toronto in 1921/1922 was one of the most dramatic events in the history of the treatment of disease. Insulin’s impact was so sensational because of the incredible effect on diabetic patients. Those who watched the starved, sometimes comatose, diabetics receive insulin and return to life, saw one of the genuine miracles of modern medicine.”*

Such must surely have been the case for your father, Dr. Walter Campbell, as he witnessed the recovery of his young patient, Leonard Thompson. There are no fewer than 12 references in Michael Bliss’ historical account of the discovery of insulin attributed to Dr. Walter Campbell. There is no question that he was at the forefront of this discovery and remained involved for many years thereafter.

Those of us fortunate enough to have attended the International Diabetes Federation congress this year were reminded of our proud Canadian heritage in the discovery of insulin. A more detailed account was also offered to the contingent of world-wide delegates. As for assigning credit for this discovery, there seems to be no shortage of controversy that has followed this event, since the awarding of the Nobel Prize for Medicine in 1923 to Drs. Banting and Macleod. This controversy includes speculation about which Canadians deserve recognition, and even if researchers in other countries made the discovery before the Canadian team. It would seem prudent to say, 88 years later, that many people contributed to the discovery of insulin and successful implementation of insulin use in humans, including Dr. Walter Campbell.

Your comment about its “successful application to the human race” is the most poignant, as it points to the important and necessary relationship between practitioners and researchers, and reminds us that every great scientific discovery must be translated into clinical applications before they are useful to patients.

Thank you for the reminder.

Colleen Rand RD CDE  
Editor-in-Chief, *The Diabetes Communicator*

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The *Diabetes Communicator* editorial board members attended the International Diabetes Federation Congress, held October 18–22, 2009, in Montreal, Quebec. The following articles offer their synopses of some of the interesting and informative sessions held there.

## Exogenous Insulin and the Risk of Cancer

Marilyn McInnes RN BA MEd CDE  
Hamilton, Ontario

Dr. Hertzler Gerstein's talk at the IDF congress symposium on glucose-lowering drugs and cancer was entitled *Does Exogenous Insulin Cause Cancer?* However, he began by stating that it might also have been entitled *Does Exogenous Insulin Prevent Cancer?*

Dr. Edwin Gale, the first speaker in this symposium, stated that cancer can be considered one of the late complications of type 2 diabetes. Similarly, Dr. Gerstein discussed a 2009 meta-analysis of 78 cohort studies that demonstrated that type 2 diabetes is a risk factor for cancer of the liver, pancreas and kidney, but that diabetes may protect patients from prostate cancer (1). There is less data available for people with type 1 diabetes; however, they may have a higher risk for cancer of the stomach, endometrium, cervix and pancreas, than those without diabetes.

One possible explanation for the relationship between dysglycemia and cancer is that people with type 2 diabetes have endogenous and/or exogenous hyperinsulinemia. This excess insulin may have mitogenic effects on cancer cells that cause them to proliferate, thus promoting the growth of latent cancer cells. Insulin may also promote angiogenesis, the formation of new blood vessels that could increase the blood supply to cancer cells. There may also be unrecognized cancer-promoting effects of the medications for comorbidities taken by people with diabetes.

A 10-year follow-up study in Korea of >13,000 men and women whose fasting blood glucose (FBG) was recorded at study onset, demonstrated a clear, progressive relationship between FBG and risk of all cancer deaths in men and women (2). Glucose levels were recorded as low as 5.0 mmol/L

and progressed into the diabetes range; the study showed that the higher the FBG, the greater the risk for cancer. As well, A1C has been shown to be a progressive risk factor for colorectal cancer.

Bioenergetics — i.e. the way in which cells take up and use glucose to stay alive — has been a neglected area of research in the cancer field, but may be relevant to cancer development. Cancer cells require a steady supply of glucose to survive: if deprived of it, they die. Thus, depriving cancer cells of glucose may be a new therapy for cancer in the future.

“Four administrative database studies of glargine vs. other insulins did not show any relationship between glargine and cancer.”

What about confounders in clinical studies? If a relationship is noted between a risk factor and an outcome, it may appear that the risk factor caused the outcome; however, it may be that other risk factors were present, but neither measured nor controlled for in the study. Pre-existing cancer, physical activity levels and smoking are possible confounders that, when controlled for, could potentially eliminate the cause and effect relationship noted between the original risk factor and the outcome.

Database studies are hypothesis generating but not hypothesis testing. Some do not control for known confounders, and none control for unknown confounders. Four administrative database studies of glargine vs. other insulins did not

show any relationship between glargine and cancer (2-5). One of these studies, after adjusting for age and sex, showed a 14% reduced risk of cancer with glargine; however, when adjusted for age, sex and dose, showed a statistically significant 14% higher risk of cancer (5). There was a question of increased risk of breast cancer in 2 of the studies when glargine was used alone, however, when glargine was combined with other insulins the relationship disappeared. Therefore, these cohort studies do not consistently show a link between glargine insulin and cancer; indeed, they may support the hypothesis that glargine insulin increases cancer risk, but could equally support the hypothesis that glargine insulin may reduce the risk of cancer.

Randomized controlled trials (RCTs) are the best studies for testing hypotheses of cause and effect, because they balance all confounders among participants, i.e. Group A has the same confounders as Group B. RCTs of glargine have not shown a link between insulin and cancer. The Outcome Reduction with an Initial Glargine Intervention (ORIGIN) study is an ongoing RCT in which 12,500 patients have been randomized to one injection of glargine daily or usual diabetes care. ORIGIN is currently in its fourth

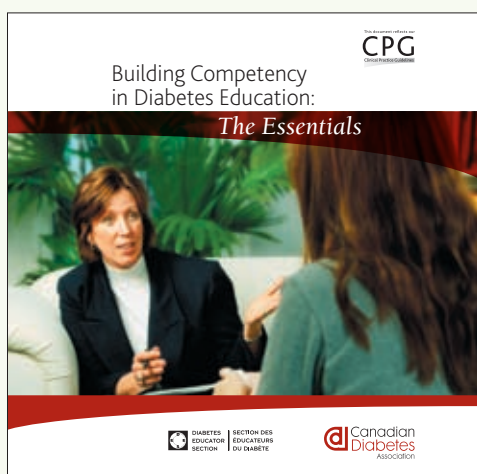
year of follow-up and has had 50,000 patient follow-up years. This study was examined by the Independent Data Monitoring Committee, which found no cause for concern and no need to alter study design.

Dr. Gerstein concluded that the effect of insulin analogues on cancer risk remains unknown at this time. Clearly, further study is needed.

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## Hot off the Press: The Essentials



Are you new to the world of diabetes education? Are you looking for ways to empower clients of all ages? The Canadian Diabetes Association has completed its revisions of the self-study manual ***Building Competency in Diabetes Education: The Essentials***. *The Essentials* is now 25% larger and reflects the 2008 *Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*.

Practical applications will guide you through your learning on the many aspects of:

- insulin regimens
- nutrition therapy
- micro and macrovascular complications
- pharmacotherapy
- self-management
- stress management
- psychosocial adjustment

This current publication can be purchased for **\$275.00** from the literature order desk ([orders.diabetes.ca](http://orders.diabetes.ca)). Jump start your career in diabetes education today with *The Essentials*!

# Screening and Early Detection of Diabetes: *International Perspectives and Lessons Learned*

Sandy Kostyniuk BA BSW

Program Consultant, Public Health Agency of Canada, Manitoba/Saskatchewan Region

The Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada (1) identify prevention of type 2 diabetes as a priority and provide evidence-based recommendations for prevention initiatives. The diabetes knowledge exchange session entitled *Screening and Early Detection of Diabetes*, hosted by the Public Health Agency of Canada (PHAC), provided attendees with a unique opportunity to hear international experts from Finland, Germany and Canada present their perspectives, experiences and lessons learned regarding prediabetes screening initiatives.

More than 15 years ago, the Finnish Diabetes Prevention Study (FDPS) (2) was one of the first randomized controlled studies to demonstrate that type 2 diabetes is preventable through lifestyle intervention. Addressing attendees, Dr. Jaakko Tuomilehto, National Public Health Institute, Helsinki, Finland, noted that the goal of the FDPS was to provide a definitive answer to the question of whether nonpharmacologic primary prevention of type 2 diabetes by lifestyle modification was possible. In this 3-year study, 522 overweight subjects with impaired glucose tolerance were randomized to either an intervention or control group. Dr. Tuomilehto stressed the importance of setting ambitious, yet achievable, targets for the intervention group, which included:  $\geq 5\%$  weight reduction, moderate physical activity  $\geq 30$  min/day, dietary fat  $< 30$  proportion of total energy (E%), saturated fat  $< 10$  E%, and increased dietary fibre  $\geq 15$  g/1000 kcal.

The importance of individualized intensive nutritional and physical activity counselling was stressed for the intervention group, compared with the control group, who received general information about diabetes risk and lifestyle changes. The intensive lifestyle intervention induced several favourable changes in diet, physical activity, blood glucose levels and lipid concentrations, and a significant reduction in diabetes incidence (58%) (2).

These impressive results have been reproduced

in other studies, including the Diabetes Prevention Program, where lifestyle intervention also showed a 58% risk reduction, compared with pharmacologic treatment alone (3).

To ensure that the significance of these results could be applied beyond the research setting, the Finnish Diabetes Risk Score (FINDRISC) tool was developed. This self-administered scoring test is used as an indicator of diabetes risk; to date more than 100,000 individuals (out of a population of 5 million) have been screened using FINDRISC.

“Canada has drawn upon the expertise of such countries as Finland in the development of prediabetes screening and prevention initiatives.”

Study results have also provided the stimulus for program development, such as the Development Programme for the Prevention and Care of Diabetes in Finland (DEHKO 2000–2010). This is the first national diabetes program to implement strategies for the prevention of type 2 diabetes on a population-wide scale. It is now in its final phase, after nearly a decade of activity, and it has been widely watched for the way it has shown a reduction in the incidence of type 2 diabetes, while increasing the quality of diabetes care. More information on DEHKO, which is coordinated by the Finnish Diabetes Association, is available at [www.diabetes.fi](http://www.diabetes.fi).

The implementation of coordinated diabetes prevention efforts was also discussed during the presentation entitled *The European Perspective of Diabetes Prevention*. Noting that the risk for type 2 diabetes begins 20 years prior to diagnosis, and that 7 of 10 diabetes cases can be prevented through lifestyle intervention, Dr. Peter Schwarz, University Hospital, Dresden, Germany, stressed the need for standardized diabetes prevention guidelines and healthcare professional training standards (4). Dr. Schwarz indicated that 3 of the

## DES Call for Nominations 2010

The Diabetes Educator Section has exciting opportunities for members who are interested in making a significant contribution to the Canadian Diabetes Association (CDA) and the DES. The DES National Executive conducts strategic planning for DES, addresses issues that have an impact on DES members and diabetes education in Canada, and acts as a national decision-making body for the DES and as a source of expertise on diabetes education for the Association and other organizations.

DES National Executive nominations are presently being sought for two positions, with terms beginning in Autumn 2010:

- Director of Communications (three-year term)
- DES Treasurer (two-year term)

For additional information, including position descriptions, deadlines and nomination forms, please visit: <http://www.diabetes.ca/for-professionals/des/nominations/>, or contact Jennifer Belding, Coordinator, Professional Memberships and Projects, via email ([jennifer.belding@diabetes.ca](mailto:jennifer.belding@diabetes.ca)).

Please consider one of these exciting opportunities for yourself or for one of your colleagues.

**Nomination deadline:  
Friday, May 14, 2010**

27 countries within the European Union have implemented standardized prevention guidelines and programming, despite an overall diabetes prevalence rate of 8.5% in Europe.

The establishment of the Active in Diabetes Prevention Network ([www.activeindiabetesprevention.com](http://www.activeindiabetesprevention.com)) has linked healthcare professionals and stakeholders in primary prevention of type 2 diabetes worldwide. The overall goal of the network is to stimulate and support active communication between all members, with the aims of sharing information, resources and advice, defining diabetes prevention practice, and empowering all people who are active in prevention of diabetes at all levels, sectors and disciplines. At the 6th World Congress on Prevention of Diabetes and its Complications, to be held in April 2010, the network will issue a book that summarizes practical experiences and information regarding the implementation of diabetes prevention programs worldwide, with the goal of establishing a standardized technical handbook for practical diabetes prevention programming.

Canada has drawn upon the expertise of such countries as Finland in the development of prediabetes screening and prevention initiatives. The CANRISK tool has been modeled on FINDRISC, with questions adapted by PHAC's Pre-diabetes Technical Advisory Group. This questionnaire includes risk scores for ethnicity, gestational diabetes, macrosomia, family history and smoking. Chris Robinson, Manager of Economic Analysis with PHAC, presented data that suggest approximately 3.1 million Canadians aged 40 to 74 years (23% of the population) are at risk for prediabetes. Yet, a 2009 PHAC survey showed that only 9% of adults have been told they had prediabetes, and it is estimated that 1 in 50 adults aged 40 to 74 actually has asymptomatic type 2 diabetes, but is currently unaware and undiagnosed.

The comparison between these figures has strengthened the case to implement prediabetes CANRISK pilot projects across Canada. Funded by PHAC, these project sites in urban and rural settings will see participants aged 40 to 74 years complete the CANRISK questionnaire and have a blood test done (FPG + OGTT). In addition to informing participants who have type 2 diabetes, healthcare professionals will also inform those participants who have prediabetes, and provide access to lifestyle intervention programming.

As of September 2009, 2,931 individuals had

been screened: using this screening tool, 5% new undiagnosed type 2 diabetes cases and 15% new prediabetes cases were identified. Current pilot projects have shown that more than half of these prediabetes cases would not have been identified through normal screening using conventional fasting blood tests. However, these early indicators of success must be weighed against CANRISK process evaluation results. For example, participant feedback has revealed challenges with certain questions, such as BMI and family history. As a result, the wording has been revised on the CANRISK questionnaire. It has also been determined that this tool is best suited as part of a face-to-face screening process with healthcare professionals vs. a self assessment tool. Overall, however, PHAC's prediabetes screening pilots have demonstrated real-world effectiveness and user satisfaction with this two-stage screening process.

It goes without saying that the costs associated with diabetes care throughout the world are enormous. Many provinces across Canada have already recognized the potential savings of healthcare dollars if more funding was allocated towards chronic disease prevention strategies and initiatives. The lessons learned and complimentary perspectives shared from this group of international experts provided participants with a renewed sense of motivation for concerted efforts in diabetes screening and prevention initiatives.

The CANRISK questionnaire can be found at [www.diabetes.ca](http://www.diabetes.ca)

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## DES Sponsors a Diabetes Educator from Cameroon

*Tracy Everitt MAEd RD CDE*

*Diabetes Education Program, Alberta Health Services, Red Deer Alberta  
 Chair, Central Alberta Diabetes Educator Section Chapter*

In Spring 2008, the Central Alberta DES chapter wanted to sponsor a diabetes educator from a developing nation to attend the IDF congress. Unfortunately, our chapter did not have sufficient funds to cover all costs, so we appealed to other DES chapters to enquire if others could contribute to the cause. Fourteen chapters, plus some individual donors, supported this initiative. The delegate chosen was Mrs. Achu Phebe, president of the Pan Africa Diabetes Educators Group, headquartered in Cameroon, Africa. Following is a summary of a conversation that took place with Mrs. Phebe during the congress.

### What is your job in Cameroon?

I am a nurse anesthetist and I teach in the school for state-registered nurses. I retired in December 2008 at age 55, but continue to teach, as there is a shortage of staff and I have not yet been replaced. I was the deputy director of the school.

### What is your educational background?

I am an anesthetist by specialization. I have a degree in Nursing Education and Administration from the University of Yaounde, Faculty of Medicine and Biological Sciences.

### How are you involved with diabetes?

My research project at the university was on the knowledge and attitudes of health personnel in the educational aspects of diabetes.

I volunteer with the Cameroon Diabetes Association. I work as a diabetes educator and train other people to take care of people with diabetes; I also coordinate diabetes educator programs and I am a trainer of trainers. In my region, I am the main educator. The job is a difficult one because many people who have been trained in diabetes are now working with HIV/AIDS — where there is more money — so that is where people want to work for pay. It is hard to keep people in the field of diabetes because there's no money. It is purely voluntary services in our region and it is time-consuming.



*Mrs. Achu Phebe with her family and her colleagues from the Central Alberta Chapter:*

I also host a radio program called “It’s Good to Know.” It airs Saturday mornings and I discuss different aspects of diabetes. I know this program is effective because after the program airs, people come looking for me to ask questions. It is one of the favourite health shows on the radio.

There is another program in my area called Sponsor a Child with Diabetes. The Rotary Club International of Perugia, Italy, and the Rotary Club of Cameroon decided to sponsor 20 children with diabetes under 18 years of age. The sponsorship will last for 3 years and provide medications, test strips, transportation to the clinic and food for those in need. This program will launch soon and I am the coordinator in my region.

### Is diabetes a big problem in Cameroon?

The reported incidence in Africa is between 1% and 3%. However, due to underdiagnosis, for each diagnosed case, there are probably 4 or more people who have it and don’t know it. Ignorance, fear and superstition further complicate the already bleak situation.

“I have gained much knowledge and information from the scientific presentations, especially those that address helping children stay safe at school.”

## Job Posting

The Canadian Diabetes Association has a careers site especially for you! Job opportunities within the diabetes community, including positions for nurses, educators and health care specialists, are available for your review today.

Visit [diabetes.ca/careers](http://diabetes.ca/careers) and find the right job for you.

### Do people have access to diabetes supplies?

People have access to blood glucose meters but sometimes the cost of strips is a barrier. People do not seem to regularly check their blood glucose, but they do when they notice symptoms of high blood glucose. My husband owns a pharmacy and has a pilot diabetes education clinic for people with diabetes and hypertension. He sells the strips for half the price of the hospital, so they are more affordable for the patient.

Most medications for type 2 diabetes are affordable. The Cameroon Diabetes Association has worked hard to lower the price of insulin in the last few years, so it is affordable for people. However, some people do not ever access it due to cost and lack of knowledge. The syringes are expensive and pens are not available.

### What types of problems do you face?

Some of the problems we encounter relate to an unacceptably low number of people who are diagnosed early in the course of the disease, general ignorance about the disease and the lack of an adequate educational infrastructure. Added to this, we encounter a lifestyle that precludes self-management by the patient.

Clinic access is an issue. Most clinics are in urban areas but they are generally inadequate in number, with one clinic often serving an entire city or large geographical area. Some clinics do not even have electricity, and educational equipment such as overhead projectors, televisions or video machines are unheard of in most rural areas. Long lines are found at the clinics, with the main focus being on emergency care or diseases that requires urgent intervention, such as AIDS, tuberculosis or malaria.

Limited medical personnel is an issue. Most clinics are very understaffed, and it is not unusual to have one doctor for an entire clinic, or even covering a number of clinics. Similarly, there is an inadequate number of nursing and allied medical staff.

### What types of unfortunate situations do you see?

One girl was diagnosed at 12 years of age, but her parents had died and she had no one to look after her. We sponsored her to do sewing, and she sells the clothes she sews in our main market. She even-

tually was able to afford her own sewing machine and has a shop in the market. She is now 27 years old. We have trained her as a diabetes educator, and she assists in clinic activities. If there are difficult patients, she helps by sharing her own experiences even though she has only a primary school education. Patients believe what she says. She has been lucky.

Other children are not so lucky. If they no longer have parents, other family members may be in charge of looking after them but the care is very expensive. Sometimes there are misconceptions about diabetes, and hypoglycemia or hyperglycemia can be blamed on witchcraft. For example, a child in secondary school whose parents died of HIV/AIDS is now being cared for by her uncle. The uncle's wife accused her of being a wizard, as the child has fluctuating blood glucose levels and is dealing with hyper- and hypoglycemia.

### How has attending the IDF congress helped you help people with diabetes in your country?

I have gained much knowledge and information from the scientific presentations, especially those that address helping children stay safe at school. I have children with diabetes in most of our schools and I have been trying to develop a program for the teachers and did not know how to do it. I have a CD from the congress purely on keeping children safe in school. This will help me a lot. And this experience will be shared with other educators in the African region where I coordinate. I also enjoyed the session on gestational diabetes and follow-up. I picked up booklets on this topic, which is what I am teaching in the school for nurses specializing in reproductive health.

I have also acquired lots of pamphlets that will enhance my weekly radio programs, and I attended a networking session with members of the Canadian Diabetes Association's Diabetes Educator Section, where experiences were shared; some of what I gathered there will improve the care of people in Cameroon.

Kathleen Polet of the Central Alberta DES chapter has proposed a pen pal program between children in Africa and Canada. To me this is a wonderful opportunity. I am going to make sure it takes place, so that children with diabetes in Africa can interact with those in developed countries to better their care.

## Adult Adiposity and Diabetes: What is the Connection?

Elaine M. Cooke, BS Pharm RPh CDE  
Safeway Pharmacy, Maple Ridge, British Columbia

**T**he UN/UNESCO Helmut Mehnert award recognizes major contributions to the knowledge and understanding of diabetes, its complications, their causes and their prevention. Dr. Chittaranjan Yajnik, one of this year's award recipients, gave a lecture on the topic of *How the Seeds of Adult Adiposity and Diabetes are Sown in the Womb*.

The general consensus is that type 2 diabetes results from genetic susceptibility, precipitated by obesity, diet, lack of physical activity and stress. With 45 million people in India diagnosed to date — and an estimated 80 million expected to be diagnosed by 2030 — Dr. Yajnik calls India the “world capital” of diabetes. People in India are diagnosed with type 2 diabetes 10 years earlier than those of European descent and have a lower BMI but are centrally obese and more insulin resis-

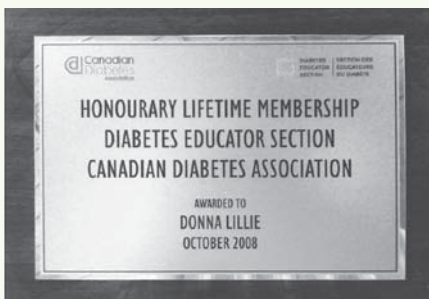
tant. Comparing people of European descent and Indian patients with the same BMI, Indians have a higher waist to hip ratio, a higher percentage of body fat and lower muscle mass. Dr. Yajnik terms this the “thin-fat” Indian.

Research by Barker and Hales suggests that a thrifty phenotype at birth, resulting from fetal and perhaps maternal undernutrition resulting in intrauterine growth retardation, predicts adult diabetes (1). They demonstrated an inverse association between birth weight and type 2 diabetes. One-third of Indian babies are born at a low birth weight, and the thrifty phenotype may have important implications for the diabetes epidemic in India. Dr. Yajnik's group studied mothers and their babies born from February to May 1998 at the King Edward Memorial Hospital in Pune, India, and compared them with mothers of

### DES Awards News Flash!

The Diabetes Educator Section Awards Brochure is now available at the Canadian Diabetes Association's the Professional Section website: <http://www.diabetes.ca/for-professionals/des/awards/brochure/>

Awards are an opportunity to share ideas and practices, which in turn can help other DES members and their patients! Encourage your DES colleagues to apply for awards. We must promote our peers and publicly recognize the excellent job they are doing!



#### Award categories include:

- Diabetes Educator of the Year
- Eli Lilly Graduate Scholarship
- BD Distinguished DES Volunteer Service Award
- Novo Nordisk Conference Scholarships
- Practical Diabetes Resource Award
- Roche Diagnostics Public Service and Education Award
- Diabetes Camp Educator Award
- Honorary Lifetime Achievement Award
- DES Length of Service Award

**The deadline for DES awards applications is Thursday, April 1, 2010.**

Applications can be requested from Jennifer Belding, Coordinator, Professional Memberships and Projects, via email ([jennifer.belding@diabetes.ca](mailto:jennifer.belding@diabetes.ca)).

European descent and their babies born between July and September 2000 at a hospital in the United Kingdom. Although smaller in all other body measurements, Indian babies have a higher percentage of body fat. Skin fold measurement showed Indian babies are centrally adipose, but thin in muscle and viscera. The relatively thin, centrally fat phenotype of Indian adults thus originates in the intrauterine life (2). It is known from observation that the mother's exposure to famine in the first 2 trimesters of pregnancy results in the offspring becoming more obese as an adult, rather than famine exposure in late pregnancy. Is this occurrence genetic or, rather, related to nutrient exposure in utero?

“People in India are diagnosed with type 2 diabetes 10 years earlier than those of European descent.”

The Pune Maternal Nutrition Study (PMNS) (3), conducted by Yajnik and colleagues, attempted to answer this question. Maternal size, nutritional intake and circulating concentrations of folate, vitamin B<sub>12</sub>, total homocysteine and methylmalonic acid of 700 pregnant women from 6 villages were measured at 18 and 28 weeks' gestation. At birth and every 6 months thereafter, the children were measured for anthropometry, body composition (skin fold measurements and dual-energy X-ray absorptiometry scan) and insulin resistance. The majority of mothers were vegetarian, consuming large amounts of green leafy vegetables; 65% had low B<sub>12</sub> concentrations, 90% had high methylmalonic acid and 30% had raised total homocysteine. Only 0.2% had low folate levels. The PMNS children are short and thin but relatively adipose, compared with children of European descent. Maternal values were correlated to their children's measurements at 6 years of age. Higher maternal folate concentrations at 28 weeks gestation predicted a higher adiposity and higher insulin resistance. Low maternal vitamin B<sub>12</sub> at 18 weeks predicted higher insulin resistance in the children. Children born to mothers with high folate and low vitamin B<sub>12</sub> levels were the most insulin resistant.

Low folate status has been implicated in neural tube defects. The Indian policy is to provide iron and folic acid (60 mg and 500 µg per day) to all pregnant mothers. Although 65% are deficient, there is no recommendation for vitamin B<sub>12</sub> supplementation in India. The PMNS mothers had adequate folate status from dietary intake before supplementation started at 18 weeks gestation, which further increased the folate levels. Dr. Yajnik stated that many Indian obstetricians routinely prescribe 5 to 15 mg of folic acid with the intention of preventing neural tube defects, even though the majority of pregnant women visit their doctor after 12 weeks' gestation, when the neural tube is already closed.

The rural setting of the study represented the circumstances of approximately 70% of the Indian population. The lacto-vegetarian food habits of the women in this study are similar to approximately 40% of Indian households and 10% of the world population. The study participants were mainly vegetarian, so the low nutrient levels may be related to the vegetarian diet consumed by 40% of Indians and 10% of the world. Low circulating levels of maternal vitamin B<sub>12</sub> with high levels of folate predicted childhood adiposity and insulin resistance. Data from the PMNS study raise the possibility that high folate intake in vitamin B<sub>12</sub>-deficient mothers could increase the risk of type 2 diabetes in offspring and could also be contributing to the diabetes epidemic in India.

The Indian prevalence of type 2 diabetes is not simply the result of the “thin-fat” Indian phenotype present from birth, precipitated by adult obesity and lifestyle factors. Dr. Yajnik's work has shown that nutrient exposure of the fetus may be at the heart of intra-uterine programming of adult diabetes.

## References

1. Hales CN, Barker DJP. The thrifty phenotype hypothesis. *Br Med Bull.* 2001;60:5-20.
2. Yajnik CS, Lubree HG, Rege SS, et al. Adiposity and Hyperinsulinemia in Indians Are Present at Birth. *J Clin Endocrinol Metab.* 2002;87:5575-5580.
3. Yajnik CS, Deshpande SS, Jackson AA, et al. Vitamin B<sub>12</sub> and folate concentrations during pregnancy and insulin resistance in the offspring: the Pune Maternal Nutrition Study. *Diabetologia.* 2008;51:29-38.

#### EDITORIAL...CONTINUED FROM PAGE 1

meeting we held at the congress. Perhaps you have noticed that most of the board members in attendance contributed an article to this issue. It is our commitment to the *Communicator's* readers to report on the best and most important aspects of the conference each year. I am continuously impressed with the level of professionalism, depth of understanding and willingness to work on solutions to the ever-changing needs of our publication by the editorial board members. It is with a great deal of sadness that we send Marilyn McInnes off on a well-deserved retirement. Marilyn has been a role model and mentor to me and other members of the board, and we thank her for her skill, dedication and willingness to contribute in so many ways. We will miss her very much. We are also pleased to report that Dr. Lucie Levesque will be joining the Editorial Advisory Board in January 2010. Lucie is an Associate Professor with the School of Kinesiology and Health Studies at Queen's University in Kingston, Ontario, and brings both a research and physical activity background to the deliberations of the board. We look forward to working with her.

As is also noted in the "From the Chair's Desk" column, changes are afoot for *The Diabetes Communicator*: In 2010, we will publish four issues instead of six, however, each issue will be four pages longer. Please send any comments, suggestions or general thoughts about this, or any other aspect of the *Communicator*, to Patti Sayle,

Senior Editor, via email ([pattisayle@diabetes.ca](mailto:pattisayle@diabetes.ca)). We will be pleased to respond to your thoughts, just as we have in this issue to a letter from Ann Ward (page 4).

Finally, best wishes to you and your loved ones for a wonderful New Year. With a bit of luck, you will have rested and be restored as you head into 2010 with vitality!

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#### FROM THE CHAIR'S DESK...CONTINUED FROM PAGE 3

*Communicator* featured excellent articles highlighting Lori Berard, Diabetes Educator of the Year, and the Chapter of the Year, Central Alberta. There are too many awards to mention, so please visit the Association's website for a full list of winners. As Director of Professional Development, I am honoured to chair the Awards Committee, which is composed of DES members Cynthia Keith, Rhea Lounsberry, Louise Lefebvre, Janice Knapp and Lisa Galvez; Tracy Everitt will also be joining us this year. The number of award applications has decreased over the past few years, despite ease of access to the nominations forms at the Association's website ([www.diabetes.ca](http://www.diabetes.ca)). Please take the time to recognize a colleague who is working in the office or chair next to you. By all means, consider resubmitting a nomination if your candidate wasn't successful the first time. Finally, watch for two new proposed awards, Small Chapter of the Year Award and an Advocacy Award.

## 11th Annual Options for Diabetes Conference

#### WHEN

Saturday, April 16 –  
Sunday, April 17, 2010

#### WHERE

Holiday Inn  
2 Princess Street  
Kingston, Ontario

#### INFORMATION

Contact Margaret Little  
phone: 613-547-3438  
or e-mail:  
[hartwork@kingston.net](mailto:hartwork@kingston.net)

## Call for Abstracts

### 13th annual CDA/CSEM Professional Conference and Annual Meetings

Abstracts for poster and oral presentations will be considered for the 2010 CDA/CSEM Professional Conference and Annual Meetings to be held:

**October 20-23, 2010 in Edmonton, Alberta.**

Abstract submission information will be emailed to all Diabetes Educator Section, Clinical & Scientific Section and Canadian Society of Endocrinology and Metabolism professional members and will be available online at [www.diabetes.ca/conference](http://www.diabetes.ca/conference) in February 2010

**Abstract Submission Deadline: April 14, 2010**

For additional information please contact:

Manager, National Conference and Meeting Services, Canadian Diabetes Association

Phone: (416) 408-7077

E-mail: [lucy.montana@diabetes.ca](mailto:lucy.montana@diabetes.ca)

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# Have YOU heard?

Since the launch of the Clinical Practice Guidelines Tool Kit with CVD Risk Assessment tools, the Canadian Diabetes Association is creating new theme materials for you!



*The Organization of Care* theme materials, based on the *Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada* will soon be released.

We have designed these materials to help you provide diabetes care efficiently and effectively. These tools are generated from the evidence in the 2008 Guidelines which indicate that a systematic approach to diabetes care improves clinical outcomes.

## THE TOOLKIT INCLUDES:

- A summary of the key components of a systematic approach to diabetes
- A laminated sample of a clinical flow chart and, on the reverse, diabetes care objectives
- A tear-off tool for patients on the value of, and preparation for a diabetes-focused visit (please consider either giving your patients a copy of this sheet or making it available in your waiting room)
- A laminated copy of the Canadian Diabetes Association's algorithm on the management of hyperglycemia in type 2 diabetes

We value your comments on these tools, please contact us at [CPGToolkit@diabetes.ca](mailto:CPGToolkit@diabetes.ca) or call **1-800-BANTING (226-8464)**

### Ian Blumer

Chair, Dissemination and Implementation Committee  
 Canadian Diabetes Association  
 2008 Clinical Practice Guidelines

### Maureen Clement

Chair, Organization of Care Sub-committee  
 Canadian Diabetes Association  
 2008 Clinical Practice Guidelines

