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Canadian Foundation for Dietetic Research Dietetic Research Event – May 28, 2005



The CFDR Dietetic Research Event, held Saturday May 28, 2005 in conjunction with the national meeting of Dietitians of Canada, is a wonderful opportunity for DC members to share with others the innovative work they have been involved with. It's also a great chance to learn more about the incredible variety of contributions that dietitians are making to the field of nutrition. Spanning the ages from the tiniest of preterm infants to dietetic interns to seniors, crossing a multitude of environments from schools, the community, and restaurants to primary health care, hospitals, and long-term care, and addressing the promotion of optimal nutrition-related disease – what a great illustration of the diverse applicability of our skills and expertise. You can't help but be proud to be a dietitian. Thank you to all of the dietitians who submitted abstracts!

Take a moment to read the titles of the 24 oral and 41 poster presentations that are featured in this year's event. Perhaps there's a solution to a question or a problem you've come across, a resource you could use in your practice, or an idea for a project or study that you could begin yourself. Speak with the authors and learn from their experiences. You are bound to be inspired by the work of your colleagues.

I'd like to express my gratitude for the time and expertise that members of this year's Abstract Review Team volunteered in comprehensively evaluating the abstracts. Thank you to Jane Bellman, Jennifer Buccino, Valerie Johnson, Daina Kalnins, Michele McCall, Marilyn Mori, Dr. Debbie O'Connor, and Marie Traynor. Thanks too to the Canadian Foundation for Dietetic Research for providing this forum for sharing experiences in dietetic practice and research, and a special thank you to Diana Sheh, and Pierrette Buklis, for their help in the review process.

Donna Secker, MSc, RD
Chair, Abstracts Review Committee

Schedule of Oral Research Presentations, Saturday May 28, 2005

10:30 a.m. – 11:30 a.m.

Pier 5

Track 1: Dietetic Internship and Long-Term Care

- The changing face of dietetic internship in Alberta – *Maureen McKay, Edmonton, AB*
- Acquiring entry-level clinical competencies in acute and long term care environments: perceived risks and benefits – *Daphne Lordly, Halifax, NS*
- An integrated approach to managing complex diets at programs facilitated by healthcare team members in the long-term care facility – *Rosemarie Russell, London, ON*

Harbour A

Track 2: Wellness and Public Health: Food Security and Hunger

- Food insecurity: a pervasive problem among low-income Canadians – *Sharon Kirkpatrick, Toronto, ON*
- Differences in food intakes among disadvantaged adults in Montreal assessed early years versus late in the month: cues for understanding food insecurity – *Bryna Shatenstein, Montreal, QC*
- An ethnographic study of programs serving food to homeless people in Toronto – *Maryrose Reyes, Toronto, ON*

Harbour B

Track 3: Education, Training and Counselling

- Dietitian education improves adherence to a sodium restricted diet in patients with heart failure – *JoAnne Arcand, Toronto, ON*
- Cardiac Rehabilitation – Out of the box and onto the Plate – *Marg Alfieri, Waterloo, ON*
- Production of care maps for individual diet counseling of clients with dyslipidemia using Delphi process – *Dawna Royall, Guelph, ON*

Harbour C

Track 4: Wellness and Public Health: Infants and Children

- Breastfeeding among women in the early childhood intervention (ECI) program in New Brunswick – *France Rioux, Moncton, NB*
- Mission 5522: development of a self-directed children's nutrition education game – *Katie Jessop, Mississauga, ON*
- Health EatS (Eating at School) Project: supporting the implementation of healthy eating policies in Prince Edward Island elementary schools – *Mary Acorn, Charlottetown, PE*

Oral Research Presentations

12:30 p.m. – 1:30 p.m.

Pier 5

Track 1: Nutritional Therapy: Case Management

- Development of a model to determine inpatient dietitian direct care time – *Carlotta Basualdo – Hammond, Edmonton, AB*
- Assessing effectiveness and costs of dietitian services within a primary health care demonstration project – lessons learned – *Bridget Davidson, Guelph, ON*
- Redesigning clinical nutrition services for adults in the Calgary Health Region – *April Matsuno, Calgary, AB*

Harbour A

Track 2: Wellness and Public Health: Seniors

- Covariates associated with dependence in meal preparation and grocery shopping in community – living seniors – *Heather Keller, Guelph, ON*
- Food and water handling practices of seniors in a boil water advisory emergency – *Bonnie Lacroix, Guelph, ON*
- Using the resident assessment instrument for home care to identify nutrition risk in seniors – *Mary Ann Boccock, Guelph, ON*

Harbour B

Track 3: Food Content, Selection and Safety

- Bioavailable dietary iron estimates for mixed food dishes from the Canadian Nutrient File – *Marcia Cooper, Ottawa, ON*
- Nutrition claims on food labels: do they influence price? – *Laurie Licciuto, Toronto, ON*
- Stakeholder perspectives on a safe food handling label for restaurant take-out – *Brae Surgeoner, Guelph, ON*

Harbour C

Track 4: Wellness and Public Health: Intervention, Monitoring and Evaluation

- Initiation of community action around promotion of healthy eating and active living using community mapping tools – *Farah Bandali, Calgary, AB*
- Encouraging Healthy Nutrition Choices: nutrition education for adolescents – results and perspectives – *Carol Henry, Saskatoon, SK*
- L'alimentation telle que décrite et photographiée par les homes québécois de 18 à 24 ans vivant en appartement – *Marilyn Manceau, Montréal, QC*

Canadian Foundation for Dietetic Research

Dietetic Research Event – May 28, 2005

These abstracts represent research projects of dietitians that were accepted through a peer-review process for presentation.

**Indicates the presenter*

[R] = Research abstract

[E] = Experience-sharing abstract

Dietetic Internship and Professional Skills

A listserv to connect dietetics students to volunteer

KA Traviss, University of British Columbia, Vancouver, British Columbia [E]*

Purpose: To establish a system for connecting prospective and current dietetics students with pertinent volunteer opportunities.

Description of Process or Content: Many students seek dietetics-related volunteer opportunities to help them to obtain professional exposure and acquire relevant skills. Our students have found it difficult to locate suitable volunteer positions, and we have not previously established a system to connect local dietitians to volunteer students. In May 2004, we established a volunteering listserv for students, and posted subscription instructions on our dietetics program website. BC dietitians were informed of the listserv and given guidelines for posting opportunities. In January 2005, in response to an open request for feedback, we gathered responses from 17 students and eight dietitians.

Project Summary: We currently have 154 student subscribers, and 22 volunteer and eight paid opportunities for one or more students have been posted. Roles have included assisting with food services, academic research, education events, general administration, and projects directly related to dietetic practice. Feedback from users has been positive; students express satisfaction with the ease of use (opportunities are communicated instantly using email), the variety of positions posted, and value of postings in stimulating thought about other opportunities to pursue independently. Dietitians appreciate the enthusiastic (and often instant) student responses to their postings. There are no costs for the listserv (each UBC email subscriber can establish five lists) and listserv administration involves minimal time. Suggestions for enhancing the listserv include providing reminders to users about guidelines for use, promoting its use by community organizations, encouraging summer term postings in non-Vancouver locations, and promoting professional conduct amongst volunteers.

Recommendations & Conclusions: A listserv is a simple and effective means of connecting students to 'real world' dietetics experiences.

The FoodSense intern education program

TM Cividin, J Rankin, KA Traviss, NC Morley, Vancouver General Hospital, Vancouver, British Columbia [E]*

Purpose: To design an educational intervention to address our observations that, increasingly, dietetic interns seemed to lack 'food sense', which we defined as 'knowledge and appreciation of food and culture and transfer of this knowledge into dietetic practice'.

Description of Process or Content: We incorporated a pilot FoodSense (FS) program, consisting of monthly intern-led sessions, into the internship program in 2003/04. Recognizing that interns vary in food-related knowledge and skills, we opted to have interns establish program content based on their perceived needs, rather than offering a prescriptive, structured program. In addition to enhancing FS, we hoped this program would stimulate self-directed learning, collaboration and information-sharing. We organized quarterly meetings to gather intern feedback about the program, and designed an evaluation form to obtain feedback from dietitians and interns attending FS presentations.

Project Summary: Interns presented 10 FS sessions on varied topics including exotic fruits and vegetables, diets related to eastern philosophies, the experience of following popular weight loss diets, gluten free flours and grains, and public perceptions of dietitians. Learning activities included presentations, demonstrations, intern crafted videos, and experiential learning with debriefing discussions. Dietitians were enthusiastic about the sessions, valuing the content information and discussions about the relevance to practice. Interns indicated that the FS program helped them to learn, increased their quest for further knowledge, provided an outlet for their creativity, and offered opportunities to be in a teaching role with the dietitians. Unanticipated benefits included enhanced presentation skills and team cohesion.

Recommendations & Conclusions: The FS pilot was a positive addition to our internship program, and has become a regular program component. This program model may be useful to other internship programs wishing to address FS learning needs. Programs need to be adequately evaluated.

The changing face of dietetic internship in Alberta

M McKay, H Bates, H Knight, S Erfle, S Mackenzie, L Crozier. University of Alberta, and Capital Health, Edmonton and Calgary Health Region, Calgary, Alberta [E]*

Purpose: The demand for highly skilled nutrition professionals is expected to increase over the next decade. Recognizing this and other workplace trends, in 2001, the Dean of the Faculty and the chair of the Department of Agricultural, Food and Nutritional Science at the University of Alberta called upon dietetic internship programs in Alberta to explore novel approaches to increase intern placement capacity.

Description of Process or Content: Historically, the Calgary Health Region post-graduate internship program and the University of Alberta coordinated undergraduate internship program were unique and separate programs. In 2001, Calgary and University of Alberta programs launched an innovative approach to enhance intern placement capacity. Close collaboration between the two groups allowed for a productive exchange of ideas on program development and creation of a formal partnership. This led to cooperation on internship placement opportunities, including identification of new placements, and a more equitable redistribution of placements. In January 2003, the new partnership selected its first 22 candidates for a combined integrated internship program. In 2004, Capital Health in Edmonton joined the partnership, adding 8 new positions to the program. In 2005, Calgary Health Region added two more positions for a total of 32 integrated positions province wide.

Project summary: This partnership has resulted in enhanced communication among the internship programs in the province, an increase in internship positions for Alberta students, and a standardized approach to learning plans and other tools used in the program.

Recommendations & Conclusions: Provincial collaboration led to an innovative approach to increasing internship capacity by fostering partnerships among programs and modeling a program which matches shifting realities of the dietetics profession.

Acquiring entry-level clinical competence in acute and long term care environments: perceived risks and benefits

D Lordly and J Taper, Mount Saint Vincent University, Halifax, Nova Scotia [R]*

Objectives: Traditionally, dietetic interns have attained entry-level clinical competence in acute care facilities. The purpose of this study was to determine the risks and benefits associated with acquiring entry-level clinical competence within specific practice environments, whether that be acute or long term care facilities.

Methods: Long term and acute care clinical

environments were investigated. A purposive sample of interns and dietitians (n=14) participating in an integrated internship program, was chosen to participate in in-depth individual interviews. Thematic data analysis was completed using open coding and was facilitated by the use of data management software NUD*IST (version QSR N6.)

Results: There were perceived risks and benefits associated with receiving clinical training exclusively in either environment with the risks in one area surfacing as the benefits in the other and vice versa. The themes that emerged included issues around: philosophy of care, approach to practice, working environment, depth and breadth of experience, relationships (both client and professional), practice outcomes and employment opportunities.

Implications and Conclusions: These findings suggest that entry-level clinical competence is achievable in both acute and long-term care environments; however attention must be paid to identified risks. Interns who consider gaining clinical competence exclusively in one area can reduce risks and better position themselves for employment in either practice area by incorporating experience in both environments into their internship program through affiliation.

A profession at a crossroads: a case study exploring the continuing education beliefs of British Columbia dietitians

S. Hostetler Miller, Faculty of Education, Simon Fraser University, Burnaby, British Columbia [R]*

Objectives: To determine what competence meant to twelve registrants of the British Columbia Dietitians' and Nutritionists' Association (BCDNA) and learn whether they thought that their past education and continuing professional education allowed them to keep pace with healthcare and industry changes. These registrants were also asked if they thought that the Association's Quality Assurance (QA) program was able to ensure competent practice.

Methods: Twelve BCDNA registrants were interviewed and asked about their past education, plans for future learning and beliefs related to competence. A three way comparison examined what was said, the types of continuing education activities engaged in and the application of learning to practice. Interview sessions were taped and transcribed; member checking was used to increase validity. Transcripts and registrant PAC forms were analyzed and themes were identified. A comparison of the QA requirements of ten Canadian and four International dietetic regulatory bodies was made.

Results: Competence had different meanings to interviewees. Themes included meeting Standards of Practice; keeping current, maintaining knowledge and skills; knowing where to look for information and when

to consult others; having the ability to recognize gaps in knowledge and skills and finding ways to obtain and maintain skills. Five interviewees didn't think that their education had prepared them to practice and two mentioned that they were prepared in only some ways. The majority of interviewees did not feel prepared at the conclusion of their formal education to practice.

Implications & Conclusions: Future university, dietetic internship programs and QA programs need to be assessed and revised to better meet the needs of practising dietitians. Other dietetic regulatory bodies have information to share.

Writers' contributions to *Practice* reflect its appeal as a member service

NC Morley, J Macdonald, Dietitians of Canada, Vancouver British Columbia [E]*

Purpose: We assessed the proportion of articles voluntarily contributed and those solicited for publication in *Practice* (DC's quarterly gazette), and the proportion of new and repeat writers. This information indicates *Practice's* appeal as a member service and informs planning.

Description of Process or Content: We reviewed the composition of all 29 issues of *Practice* published since 1998 assessing the total number of articles per issue,

categorizing articles as voluntarily submitted or solicited/invited, identifying writers as 'new' or 'repeat', and assessing changes over time.

Project Summary: In comparing data on the first 10 issues of *Practice* to the last 10 issues, the number of articles per issue has decreased from an average of 9.2 to 8.2; the proportion of voluntary contributions has increased from 72% to 84%, and the proportion of new writers has decreased from 83% to 78%.

Recommendations & Conclusions: The decrease in the number of articles per issue reflects the decision after the second year to aim for one article per each of the eight pages rather than continuing to include a greater number of shorter articles. The increased proportion of voluntary contributions over time indicates that *Practice* continues to attract DC members to share their experiences and questions arising from practice. Cyclical increases in solicited contributions reflect post-DC meeting invitations from DC Management Team members or the *Practice* Coordinator to members to contribute. The higher proportion of new writers in earlier issues reflects the newness of the publication. In recent issues, new writers contributed more than three quarters of the content. Ongoing voluntary contributions from new contributors reflect the ongoing appeal of *Practice* as a valuable member service.

Education, Training, and Counselling

Dietitians' perceptions of what it means to use a client-centred approach to nutrition counselling

D MacLellan, S Berenbaum. Department of Family and Nutritional Sciences, University of Prince Edward Island, Charlottetown, Prince Edward Island [R]*

Objectives: The purpose of this research was to determine the meaning that dietitians ascribe to the client-centred approach to nutrition counselling.

Methods: A phenomenological approach, using indepth telephone interviews with 25 dietitians, was used to collect the data. The raw data was transcribed verbatim and a form of inductive, thematic analysis was used to analyse the transcripts.

Results: Although there was general agreement that a client-centred approach to nutrition counselling involves meeting the needs and wants of clients, study participants were struggling in their efforts to balance the meeting of those needs and wants with their professional responsibility to fully inform clients about all relevant nutrition issues. Participants indicated that using a client-centred approach is essential for successful nutrition counselling outcomes, however how that approach is defined appears to vary depending on the context in which the counselling takes place.

Participants were also struggling in their attempt to find a balance between their beliefs in what a client-centred approach 'should' be and what was possible given the realities of their workplaces.

Implications and Conclusions: In Canada, the client-centred approach is considered one of the core concepts of dietetic practice. These findings suggest, however, that there is no common understanding of what it means to counsel in a client-centred manner. Thus, there is a need to reexamine our professional standards and to broaden this discussion to clarify the fundamental principles related to our approach to nutritional care. Even more importantly, we need to find out from our clients what they believe is important in a nutrition counselling relationship.

The development of Chinese patient education resources to support culturally friendly nutrition counseling

W Koo, F Johnson, M Leung. St. Paul's Hospital, Vancouver, British Columbia [E]*

Purpose: The Patient Education Resource Committee – Multicultural Subgroup (M-PERC) was formed in September 2003 to facilitate the creation of culturally sensitive nutrition education materials for patients of Chinese and other ethnic backgrounds. Our goal was to support the understanding and application of accurate healthy eating messages that are tailored to patients' specific language and cultural needs.

Description of Process or Content: Statistics Canada's 2001 Census Data reports that almost 37% of the population in Vancouver is of a visible minority background. With more than 17% of the population in Vancouver being of Chinese origin, M-PERC decided to initially concentrate on the development of Chinese nutrition education resources. Funding was granted by the hospital foundation's Enhanced Patient Care Fund to purchase a Chinese software program. Since then, M-PERC's dietitians have been working to develop Chinese patient education materials using consistent language and standardized format. The resources go beyond direct translation of already available nutrition materials in English, and are modified to reflect the characteristics of the Chinese diet. Each resource has an English counterpart so all dietitians can understand and use the information. Meanwhile, M-PERC also works to collect nutrition education materials in various languages from reputable sources to further support nutrition education for patients of different ethnic origins.

Project Summary: Thirty-three Chinese patient education resources are currently available including some collected from other sources. Patients have expressed satisfaction in receiving information they can readily understand and utilize.

Recommendations and Conclusions: Multicultural nutrition materials are essential and useful in providing patient-centered diet counseling in the cultural mosaic that we live in today.

Dietitian education improves adherence to a sodium restricted diet in patients with heart failure

J. Arcand, S. Brazel, F. Berkoff, M. Choleva, G.E. Newton, Mount Sinai Hospital, Toronto, Ontario [R]*

Objectives: Multidisciplinary heart failure management programs reduce hospital readmission rates and improve clinical outcomes. Although dietitians are often members of such teams, no randomized studies have demonstrated the independent benefit of dietitian-administered dietary counseling for patients with heart failure. The purpose of this study was to evaluate the effect of dietitian education

on adherence to a sodium restricted diet in ambulatory patients with stable heart failure.

Methods: Stable heart failure patients (left ventricular ejection fraction < 35%) receiving diuretic therapy were randomized into a dietitian education group (n = 23), or a usual care group (n = 24), then followed for three months. Both groups received a 2 gram/day dietary sodium prescription. The usual care group received nutrition advice by way of self-help literature, while the dietitian education group returned for two counseling sessions with a dietitian. Data was analyzed using 2 way repeated measures analysis of variance.

Results: In patients randomized to dietitian education there was a significant decrease in sodium intake at three months (2.80 ± 0.30 to 2.14 ± 0.23 g/day, $p < 0.05$). In contrast, there was no change in sodium intake in the usual care group (3.00 ± 0.31 to 2.74 ± 0.35 g/day, $p = ns$).

Implications and conclusions: Dietitian administered counseling was more effective than simply providing literature in reducing dietary sodium intake in patients with stable heart failure. Therefore, participation of a dietitian should be considered in heart failure programs to improve adherence to dietary prescriptions.

Cardiac rehabilitation – out of the box and onto the plate

M Alfieri, St. Marys General Hospital, Waterloo, Ontario [E]*

Purpose: The Cardiac Rehabilitation program at St. Marys General Hospital (SMGH) serves cardiovascular patients in the Greater Kitchener-Waterloo Area. The nutrition component has experienced a significant revitalization in the last 18 months. The goal was to move from a traditionally restrictive cardiac diet to one that employs the cognitive restructuring model. The challenge was to transform the often confusing nutrition jargon into concrete concepts and everyday food examples.

Description of Process or Content: A team of professionals sees cardiac rehab clients including: nursing, kinesiologist and dietitian. The clients are seen in a group education session which focuses on the basics of a heart healthy lifestyle. Individual nutrition assessments focus on the cognitive restructuring model to allow the clients to gain confidence in making heart healthy food choices. Monthly grocery store tours allow the clients hands on comparison shopping experience including reading labels. A new seminar series including the "DASH diet", "Eating out at Restaurants" and a "Cooking Demo" allows the clients to improve their self-efficacy of making healthier food choices on a daily basis. A recipe file of heart healthy and delicious recipes have been created as a way of introducing foods which may not be as familiar to the client such as cooking with pearl barley or split peas.

Recommendations and Conclusions: The newly energized CR nutrition program provides the clients a hands on educational approach to the heart healthy lifestyle changes which are essential to their cardiovascular risk reduction and quality of life.

Production of care maps for individual diet counselling of clients with dyslipidemia using Delphi process

D Royall, RM Hanning, J Arocha, PM Brauer. Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario and Department of Health Studies and Gerontology, University of Waterloo, Waterloo, Ontario [R]*

Objectives: Overall goals for the nutrition management of dyslipidemia have been developed, but the specific diet strategies that work best for clients with differing diets, lifestyles, motivation and clinical characteristics are not well defined. The goal of this project was to produce care maps (decision guides) for the diet treatment of dyslipidemia based on recommendations by registered dietitians (RDs).

Methods: A convenience sample of RDs (n=4 new graduates; n=4 inpatient and outpatient generalists; n=4 lipid clinic specialists) first described their process of care for individual counselling, using hypothetical

Food Content, Selection, and Safety

Bioavailable dietary iron estimations for mixed food dishes from the Canadian Nutrient File

MJ Cooper, IM Rondeau, MR L'Abbé. Bureau of Nutritional Sciences, Health Products and Food Branch, Health Canada, Ottawa, Ontario [R]*

Objectives: The Canadian Nutrient File (CNF), like most national food composition databases, lists only total iron values. The lack of heme/nonheme iron amounts in the database has limited the ability to accurately estimate total bioavailable iron in the Canadian diet. Our objective was to estimate iron bioavailability for mixed dishes, composed of multiple ingredients, from both heme and nonheme iron sources.

Methods: In order to estimate the bioavailable dietary iron (BDI), the ratio of food sources contributing to the total iron of mixed dishes was calculated using the Nutrition Survey System (NSS), which contains a recipe database developed by the Nutrition Research Division of Health Canada for nutrition surveillance. The quantity of ingredients in selected NSS recipes were modified to closely meet the iron, protein, carbohydrate, fat and energy content of the mixed dishes in the CNF, in order to be able to approximate their iron bioavailability. A variance of 15-20% was accepted for most values when

clinical scenarios as a starting point for reflection. These interviews were subsequently transcribed, underwent cognitive analysis and all processes of care were identified. A second group of dietitians (n= 45) and expert clinicians/researchers (n=5) from across Canada volunteered to participate in a two round modified Delphi process. They rated the appropriateness of the care processes for five hypothetical clinical scenarios. After teleconference discussion, the controversial processes were re-rated in the second round. The results were used to develop draft care maps, which were reviewed by study participants.

Results: A total of 39 participants (78%) completed both rounds. The discrepancy between current follow-up practices vs. those recommended, emerged as one important cause of controversy. Four groups of assessment and counselling processes could be distinguished: processes completed with all clients, and processes that differed, depending on dietitian opinion as to the usefulness of the strategy, counselling priorities, and client clinical/psychosocial factors, particularly smoking, hypertension or diabetes.

Implications & Conclusions: Practice based care maps have been developed that will be useful to practitioners involved in the diet management of dyslipidemia. Funded by the Canadian Foundation for Dietetic Research.

adapting the NSS recipes to approximate the CNF nutrient amounts.

Results: Using a modified Monsen model (1978), BDI was calculated to be 0.03, 0.04, 0.07, 0.08, 0.10, 0.11, 0.16, 0.20 mg for cheese soufflé, beef ravioli, beef stew, pepperoni pizza, fried chicken meal, meat loaf, corned beef hash, and chili, respectively, for an individual with 250 mg of stored iron (typical levels seen in Canadian premenopausal women). This sample of foods has 4.0-17.0% bioavailable iron.

Implications and Conclusions: This novel approach for BDI estimation in mixed dishes will assist in providing more accurate estimates of total bioavailable iron for the population.

Nutrition claims on food labels: do they influence price?

L Ricciuto, H Ip and V Tarasuk, Department of Nutritional Sciences, University of Toronto, Toronto, Ontario [R]*

Objectives: New food labelling regulations in Canada require most foods to carry a mandatory Nutrition Facts table, listing the nutrient content of a food in a standardized format. Nutrition claims, including nutrient content claims, which highlight a food's positive nutritional attributes, and diet-related health claims, are also allowed on food packages, but their use is voluntary. This study was undertaken to examine the relationship between price, fat composition, and the presence of nutrient content claims.

Methods: Given the most recent dietary recommendations to minimize consumption of trans and saturated fats, and the new "trans fat free" claim, we chose to examine margarine, a product which varies in fat composition and one on which nutrient content claims are often used to direct consumers to more healthful choices. Price and label information were recorded for margarines (n=229) sold in the major supermarkets within the Greater Toronto Area. Linear regression analysis was used to examine the relationship between price and amounts of saturated and trans fats. Analysis of variance was used to compare the price of products with nutrient content claims to that of products without claims.

Results: The price of margarines increased with a decrease in their saturated and trans fat contents, and margarines with a nutrient content claim were significantly more expensive than those without a claim, irrespective of their nutrient content.

Implications & Conclusions: While limited to only one product, these results raise important questions about the policy of voluntary nutrition claims. In the context of new labelling regulations, there is a need for dietitians to educate consumers on using the Nutrition Facts table to select products that are both economical and healthy.

Stakeholder perspectives on a safe food handling label for restaurant take-out

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Purpose: A safe food handling label was designed to provide restaurant consumers with necessary, evidence-based guidelines to assist them with the safe consumption of their take-out meal. Research has indicated that many consumers are unaware that their own behavior is a contributing factor to the safety of take-out food. And foodservice statistics indicate that ten to fifteen percent of casual-dining dollars are spent on take-out, and this percentage is expected to increase as Canadians spend less time in the kitchen.

Description of Process or Content: Safe food handling labels were provided to a full-service Southwestern Ontario seafood chain with five restaurants, and three independent restaurants in the Guelph area. The labels were designed with the help of an expert panel, and included three key guidelines on how to store and reheat the take-out food. Front-of-the house service staff was instructed to place a label on take-out food containers before handling it over to the customer. Writing the date and time that the food was packaged in the space provided on the label was also requested of staff.

Project Summary: Within the first three months of the project, the restaurants had gone through a batch of 10,000 labels. A noticeable difference in the level of commitment and enthusiasm toward the project on behalf of the chain and independent restaurants was demonstrated.

Recommendations and Conclusions: A safe food handling label is a proactive approach to food safety that restaurants see as a way to protect themselves, and their customers from foodborne illness-related problems. However, a label can only begin to be an effective communication tool if there is 100% commitment to food safety within the restaurant organization.

Wellness and Public Health: Food Security and Hunger

Food insecurity: a pervasive problem among low-income Canadians

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Objectives: Food insecurity is recognized as a public health concern and serious social problem in Canada. The objectives of this research were to examine the prevalence of food insecurity in Canada and to elucidate markers of vulnerability.

Methods: Secondary analysis of data from the 2000/2001 Canadian Community Health Survey (n = 129,465), a nationally-representative cross-sectional survey, was conducted utilizing descriptive cross-tabulations and multiple logistic regression.

Results: 15% of Canadians (an estimated 3.7 million) lived in households characterized as food insecure; 2% reported food anxiety and 13% reported compromised quality and/or quantity of food due to lack of money. 7% (1.9 million Canadians) were characterized as food insufficient (often or sometimes did not have enough to

eat) and 2% (almost half a million Canadians) lived in households where there was often not enough to eat. Among the lowest income group, 44% lived in food-insecure households and 13% in households where there was often not enough to eat. The odds of food insecurity were 3 times greater among those reporting welfare, workers' compensation or employment insurance as their main source of income compared to those reporting employment, and 2 times greater among those who did not own their homes compared to homeowners.

Implications and Conclusions: Although limitations in available measures of food insecurity hinder direct comparisons of prevalence estimates over time, the experience of food insecurity is pervasive in Canada, particularly among those of low income, those who are reliant on government transfers, and those who do not own their homes. This analysis highlights the need for attention to income support and housing policies.

An ethnographic study of programs serving food to homeless people in Toronto

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Objectives: In Canada, studies continually highlight the nutritional vulnerability of homeless people, a problem rooted in inadequate food access. Responses range from traditional 'soup kitchens' providing one or two meals per day, to mobile vans handing out soup and sandwiches, to drop-in centres that provide snacks or meals. As part of a larger study examining community responses to the food and nutrition needs of homeless people in Toronto, ethnographic methods were used to further elucidate the structure and function of these programs.

Methods: Following a comprehensive inventory and structured interviews with 156 programs, 20 were selected for in-depth study using purposive sampling. Open-ended, taped in-depth interviews with program coordinators and participant observations were conducted at each site.

Results: The functioning of most of these programs is dictated by their scarce funding and overwhelming dependence on donated food. Programs have little control over the quality and quantity of the food they serve and provide only a limited number of meals. Day-to-day operations are constrained by a reliance on volunteer labour which is often inadequate and unreliable. Despite operating beyond their capacity, some agencies have expanded in attempt to serve more clients and have had to transform their operations to address 'crowd control'.

Conclusions & Implications: Such community responses provide some food to homeless people however, by design they are unable to meet clients' nutritional needs. Rather than a piecemeal response, advocating for more effective and sustainable ways of meeting the basic needs of homeless people is needed.

Differences in food intakes among disadvantaged adults in Montreal assessed early versus late in the month: insight on food insecurity and its dietary consequences

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Objectives: To examine food intakes in low-income poorly educated adults.

Methods: Food frequency questionnaire (FFQ) reliability and validity assessment was conducted in two groups of participants recruited by community organisers in low-income neighbourhoods. Groups were kept small in recognition of their need for individualised attention.

Results: FFQ assessment included 48 participants; the majority (85%) were Francophone and female (67%), around half were aged 18-50 y, 71% had completed high school, and 69% considered themselves poor. The FFQ was found to be precise, reliable and reasonably valid in this population. Dietary analysis of plausible FFQ estimated daily energy intakes among men (n=16) at 1,968±998 kcals and among women (n=30) at 2,091±823 kcals. Nutrient intakes showed considerable interindividual variability. Intakes assessed by food record (FR) featured poor intakes of fruit and vegetables (3.2±1.5 portions) and disproportionately high intakes of protein foods (3.5±1.6 portions). In the validation study, it was observed that food patterns and mean dietary intakes appeared to differ by the timing of the validation component (using 3 non-consecutive FR): that is, early (n=34) or later (n=12) in the month. In the latter, a general tendency to higher energy intakes (2156±697 vs. 1835±471 kcals), higher total fat (78±24 vs 70±26 g) and carbohydrate levels (295±134 vs 232 ±67g), and differences in many other nutrients produced statistically significant differences only in protein as a proportion of energy (14.5±3.5 vs 16.7±2.9%, p=.04).

Implications & Conclusions: The small sample size and data variability preclude meaningful conclusions, but provide insight on food security issues which may influence diet adequacy.

Food insufficiency in Newfoundland and Labrador and factors contributing to its cause

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Objectives: The purpose of this study was to look at rates of food insufficiency in residents of Newfoundland and Labrador (NL) and to study what factors may be contributing to this lack of food availability.

Methods: Data were collected by a recent provincial nutrition survey (Nutrition Newfoundland and Labrador, NNL). They were collected in-person through a questionnaire administered by trained interviewers. Data were weighted to represent adult residents (18-74 years inclusive) of the province overall.

Results: Of the 1924 respondents, between 4% and 9% of residents (varying with age-sex group) stated that they had sometimes or often not had enough food to eat during the 30 days prior to the interview (were food insufficient). Of those who reported food insufficiency, 42% skipped meals during that 30 day period in an attempt to deal with the problem. Skipping meals was

more pronounced in females than males (49% versus 31%). Not having enough money to buy food was the primary reason stated for the cause of food insufficiency. Only 6% reported a reason(s) apart from money. Other reasons given were poor food choice, no transportation, and not having the necessary household appliances.

Implications & Conclusions: These findings suggest that many NL residents do not always have access to safe and nutritious foods, mostly because they lack adequate monetary resources. Financial limitations must always be remembered when making public recommendations for healthy eating and when counselling individual clients.

Wellness and Public Health: Infants, Children and Adolescents

Breastfeeding among women participating in the early childhood intervention (ECI) program in New-Brunswick.

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Objectives: The purpose of this study was to evaluate breastfeeding initiation and duration rates among infants born to mothers who participated in the ECI program and to determine factors affecting the initiation and the early cessation of breastfeeding.

Methods: Twenty-five pregnant women and their infants were assessed at 36 weeks gestation, 3 and 6 months post partum using questionnaires and their medical records.

Results: Breastfeeding initiation rate was 62.5%. Primiparity, prenatal classes, having been breastfed, and breastfeeding intention at 36 weeks gestation had a significant positive impact on breastfeeding initiation. At 1 month, the exclusive and partial breastfeeding rates were 39% and 46%, respectively. These rates decreased to 4% and 22% by 3 months. At 6 months, none of the women were exclusively breastfeeding and the rate of partial breastfeeding was only 12%. Father's education, breastfeeding intention at 36 weeks gestation, no supplements (water or formula) during hospitalization, and higher maternal haemoglobin levels at 36 weeks gestation had a significant positive impact on the duration of breastfeeding.

Implication & conclusion: Although prenatal interventions are necessary and should be maintained, mothers participating in the ECI program may benefit from postnatal support provided by the ECI nutritionists in order to support breastfeeding. More research is needed to identify effective strategies to support the new guidelines recently issued by Health Canada, which recommends exclusive breastfeeding to six months.

Evolution of child and adolescent BMIs in Canada

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Objectives: To describe the evolution of child and adolescent BMIs in Canada from 1981 to 2001.

Methods: Age, weight and height used to calculate BMI were obtained from 9 different databases: the CFS (1981), the Campbell Survey on Well-Being (1988), the National Population Health Surveys (1995 to 1999), the National Longitudinal Surveys of Children and Youth (1997 and 1999) and the Canadian Community Health Survey (2001). The estimated proportions and confidence limits were based on survey's guidelines provided which take into account each specific designs.

Results: Between 1981 and 1999, the proportion of normal/underweight boys decreased significantly from 84.8%, 85.3% and 85.2% to 69.2%, 68.9% and 78.5% for the 10-11-, 12-14- and 15-19-year-old groups, respectively. An increase in the estimated proportion of overweight and obese boys from all age groups was observed between 1981 and 1999, but the confidence limits suggest non-significant trends. During the same period, the proportion of normal/underweight 10-11-year-old girls decreased significantly from 85.0% to 72.2% but, as for boys, the increase in the estimated proportion of overweight and obese 10- to 11-year-old girls was not significant. Variations in the estimated proportion of normal/underweight, overweight and obese 12-14- and 15-19-year-old girls were not significant. Observations of BMI values at different percentiles suggest a right shift of the upper part of the distribution. Thus, BMI values at the 85th and 95th percentiles have been increasing since 1981.

Implications & Conclusions: The negative trend in the estimated proportion of normal/underweight individuals in Canada indicates an increased prevalence of excess weight in boys of all ages but less so in girls.

An approach for practice: collaboration towards creation of a comprehensive strategy for prevention of childhood obesity

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Purpose: Childhood obesity remains a growing public health concern in Canada and the local population data for obesity and overweight in Calgary preschool children suggests a trend similar to the national data for older children. The Calgary Health Region (CHR) formed a multisectoral steering committee, Community Prevention of Childhood Obesity (CPCO) to address this issue. The collaborative efforts by the CPCO steering committee focused on influencing policy and services that reduce childhood obesity and promote healthy weights.

Description of Process or Content: Dietitians in acute care and community roles participated in this intersectoral, multidisciplinary collaboration to develop a foundational evidence base which refocused CPCO actions towards partnership development, building community linkages, surveillance and best practices, and building a strong case for policy development and planning in the CHR.

Project Summary: Three significant shifts have occurred in policy and resource allocation: 1) reallocation of acute care dietitians to community prevention strategy; 2) initiation of treatment based program where there hasn't been one for over 15 years; 3) allocation of resources for development and implementation of a comprehensive intersectoral strategic plan that embraces the continuum from population health to acute care interventions in addressing the issue of childhood obesity.

Recommendations and Conclusions: Through community supported collaborations, dietitians can play a significant role in the development and implementation of prevention of childhood obesity strategies that can have a major impact on reorienting health services.

Mission 5522: development of a self-directed children's nutrition education game

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Purpose: After confirming the need for a self-directed healthy eating resource for children which would complement and extend in-class nutrition instruction, a team of nutrition and child education experts set out to address this gap. Directed toward eight- and nine-year olds, a game was developed to provide knowledge and practical skills to apply Canada's Food Guide and help

empower children to take charge of their own food choices.

Description of Process or Content: Qualitative research was conducted to discover how children construct their thinking around healthy eating and to inform the development of an intervention that would further develop children's healthy eating practice. Literature reviews and further focus testing were conducted to confirm how this age group preferred to learn in the out-of-school environment. Children were involved throughout resource development to test concepts for gender preferences, reading level, clarity of content, and to assess the resource's ability to motivate, engage and meet learning objectives. Expertise in pedagogy and creative design were utilized in the development process. Breakfast for Learning joined in the development of the resource, while Dietitians of Canada and the Registered Nurses Association of Ontario collaborated in the review.

Project Summary: An understanding of children's nutrition education needs in an out-of-school environment, coupled with extensive feedback from children throughout the resource development process resulted in a practical, fun and relevant resource for eight- and nine-year olds.

Recommendations and Conclusions: Qualitative research conducted before and during nutrition education resource development, particularly when intended for children, is essential in designing and delivering relevant and effective nutrition education interventions.

Effectiveness of the 5-TODAY Program at Increasing Fruit and Vegetable Consumption in Grades Five and Six Children

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Objectives: The 5-TODAY program is the nutrition component of a BC initiative, Action Schools!BC (AS!BC), which promotes activity and healthy living through elementary schools. The target of the 5-TODAY program is to increase fruit and vegetable (FV) intake. The purpose of this study was to evaluate the effectiveness of the 5-TODAY program in grades 5 and 6 students. One objective was to measure FV intake and determine changes during 5-TODAY implementation.

Methods: AS!BC evaluation included 10 Vancouver schools, divided into 3 intervention levels: liaison – received the programs and a facilitator, champion-received the programs and designated a champion from within the school to help facilitate implementation, and control. The 5-TODAY program consisted of 4 FV lesson plans, as well as optional activities to promote FVs through the school environment and community. Grade 5 and 6 teachers in intervention schools were required to implement at least two 5-TODAY lesson plans. To assess changes in FV intake, 24-hour food recalls were completed with the same 133 students at

three times (before, during, and after 5-TODAY implementation).

Results: Pre-intervention FV servings/day: 4.31 liaison, 3.33 champion, 3.04 control. Post-intervention FV servings/day: 3.56 liaison, 3.07 champion, 3.88 control. Repeated measures ANOVA revealed that time ($p=.80$) and group ($p=.32$) were not significant factors influencing FV intake during 5-TODAY implementation. Results show that FV intake did not meet the recommended minimum of 5 servings /day, and the 5-TODAY program was not successful at increasing intake.

Implications & Conclusions: The 5-TODAY program was not successful, because most teachers implemented the minimum requirements of 2 lesson plans. It is recommended that future FV school interventions include multiple components, such as more intensive classroom education, environmental changes, and community involvement.

Power4Bones: a school-based bone health program

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Purpose: Power4Bones is a bone health education program for Ontario grade five students based on a social marketing framework. Developed under the direction of a Provincial Advisory Committee, it was launched simultaneously in over 700 classrooms across 72 school boards in January 2005. It aims to improve students' awareness and knowledge of bone health and bone-healthy behaviours in addition to positively influencing their intentions to incorporate bone-building foods and physical activity into their lives.

Description of Process or Content: Power4Bones is a flexible, seven-week program that uses multiple education strategies and media formats to engage students. It addresses provincial curricula across many subjects, and includes a parent component. All materials for the program are provided in a "Secret Box", which is laid out in a week-by-week format. A group of three students in every classroom take on a formal leadership role to help implement the program. Every week, a new interactive classroom announcement is played and a comic episode distributed. The comic episodes thread together a storyline for the program. In weeks two through five, one interactive web challenge is released per week for students. An action-based trivia game, meant to reinforce student learning from the other program components, can be used in class by groups of varying size. Students relate learning to their own experiences by creating a public service announcement for their peers, that can be submitted to a provincial challenge. Physical activity-themed participation rewards are provided for all students.

Project Summary: Power4Bones stands as a unique tool that meets the needs of teachers while engaging students in learning about bone health.

Recommendations & Conclusions: This multi-educational bone-health program reaches over 17,000 Ontario grade five students through various learning strategies.

Healthy EatS (Eating at School) Project: Supporting the implementation of healthy eating policies in Prince Edward Island elementary schools

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Purpose: The Healthy EatS Project provides supportive information and networking opportunities for elementary schools in Prince Edward Island (PEI) as they implement new healthy eating policies. Led by the PEI Healthy Eating Alliance, the project uses a consultative approach, multiple strategies and features multi-sectoral partnerships.

Description of Process or Content: During the policy development process, school teams (teacher, administrator, parent) from 16 "lead" or interested schools expressed a need for supportive information and networking opportunities. Project strategies included 1) developing a *Healthy EatS Resource and Implementation Toolkit* 2) implementing networking meetings for lead schools and 3) developing a "Healthy EatS Newsbites" newsletter. Schools attended "networking meetings" where they identified the type of supportive documentation needed (e.g. fundraising alternatives), provided feedback on draft toolkit materials and evaluated the final toolkit in terms of its comprehensiveness, organization, layout and overall usefulness. School teams also shared healthy eating ideas and concerns and provided feedback on the newsletter.

Project Summary: The consultative process and multi-sectoral partners has contributed to the success of the project in providing effective support, information and networking opportunities for elementary schools as they implement new district wide healthy eating policies.

Recommendations & Conclusions: The provision of the Healthy EatS toolkit and the "Healthy Eating Policy Healthy Bites" newsletter to every PEI elementary school is an important step in facilitating the effective implementation of healthy eating policies across the province and in providing ongoing information sharing.

Acknowledgements: Funding provided by the Canadian Diabetes Strategy, Public Health Agency of Canada

Food for thought: northern Nova Scotia takes action on food in schools, new regional policy development through multi agency input.

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Purpose: In Northern Nova Scotia a partnership between sectors of health, education, school advisory councils, food service providers and food producers was formed for the development of a regional school food policy.

Description of Process or Content: Policy development brought many stakeholders together to examine issues of food safety, local food use, availability and cost of healthy food choices, school fundraising opportunities, and use of food rewards in the classroom. The year long process resulted in the consensus on a policy that shares responsibility for encouraging nutritious eating as part of a healthy lifestyle between parents and the school community. The backbone of the policy is in an ABC (A: Anytime foods, B: Be Cautious Foods, and C: Cutout Foods) checklist of foods that food service personnel can use when menu planning. The guideline for ABC use was divided into elementary, junior high and high school; taking maturity for choice and out of school access into account. Capacity building strategies are now being used to implement the policy with training of food service personnel across the districts to help integrate the policy components into food service delivery operations. A "report card" describing how well schools are adhering to the policy is planned in the future as a method of monitoring success.

Project Summary: The coordinated, interdisciplinary, inter-sectorial collaboration of this partnership made the policy development possible.

Recommendation and Conclusions: Future challenges of policy implementation and monitoring will be fundamental to building skills and attitudes towards healthy eating in Northern Nova Scotian schools.

Collaborating, Creating and Capacity Building for Healthier School Food Environments: The SNAC Experience

*J Aussant *, K Staden, S Galesloot. Healthy Living, Calgary Health Region, Calgary, Alberta [E]*

Purpose: The purpose of this presentation is to describe how the collaborative efforts of the School Nutrition Advisory Coalition (SNAC) supports the creation of healthy school food environments in Calgary through the completion of a needs assessment, the creation of a school nutrition handbook, evaluation and ongoing implementation support.

Description of Process or Content: School community consultations were instrumental in developing the focus and direction for SNAC. SNAC conducted an

assessment of the current school food environment in all elementary and senior high schools in Calgary (n=278, response rate 49%). Schools provided insight into what factors shape and determine the school food environment. All schools demonstrated a strong interest in offering nutritious food choices however only 50 % of elementary and only 19 % of high schools reported having healthy food guidelines. Schools identified a need for nutrition information including healthy food alternatives, food marketing strategies and examples of nutrition guidelines.

Project Summary: In response to the needs identified by schools, SNAC created the School Nutrition Handbook. The handbook contains practical, easy-to-use information to help build capacity in school communities for healthy food options and guidelines. The handbook was reviewed by a broad range of stakeholders in Calgary and Alberta. The demand for the handbook continues to increase in Calgary and Alberta. A content and implementation evaluation is being planned and ongoing support is available for integration and implementation.

Recommendations and Conclusions: The collaborative effort of the School Nutrition Advisory Coalition has proved to be rewarding in terms of product and process. Dietitians and health professional may consider similar collaborative efforts to support community projects.

Feeding the Minds and Bodies of BC Students project

S Hansford, Kamloops, BC and J Macdonald, Dietitians of Canada, BC Region, Vancouver, British Columbia [E]*

Purpose: Dietitians of Canada, BC Region, received a one time grant from the BC Ministry of Health Services to conduct a project to reach decision makers with convincing messages to support healthy eating at school.

Description of Process or Content: A provincial advisory committee representing key stakeholders was formed to consult on the design, implementation and evaluation of the project and dissemination of its outcomes. The committee identified BC School Trustees, Superintendents and Principals and Vice Principals as the primary decision makers to target. Teachers and parents were also identified as important to reach. Current school nutrition practices in BC and elsewhere were reviewed to determine common barriers and enablers in creating supportive school nutrition environments. Messages to decision makers addressed these common barriers/enablers and included sample success stories and suggested courses of action. The communication strategy emphasized collaboration with key partners and multiple points of contact with target groups, including face-to-face, print and electronic messaging. Key points of contact with decision makers included presentations at provincial

conferences. Two new tools developed with input from a focus group, the project Advisory committee and other stakeholders captured the main messages. A poster and bookmark targeted to key audiences capture the collaborative aspect of the project.

The communication strategy will be evaluated with project outcomes shared through Dietitians of Canada, the Directorate of Agencies for School Health (DASH) website, electronic listservs and stakeholder organizations.

Project Summary: Collaboration with key partners and provincial organizations representing target groups has been important in the realization of communication opportunities.

Recommendations and Conclusions: Sharing success stories and best or promising practices can support members of the school community in overcoming some of the real and perceived barriers to improving the school nutrition environment.

Encouraging healthy nutrition choices: nutrition education for adolescents-results and perspectives

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Objectives: Studies indicate that changes in diet quality and beverage choices play an important role in high prevalence of overweight and obesity among youth. The purpose of this study was to develop and implement a multi-factorial and interactive nutrition education

program “*Fluid Used Effectively for Life (F.U.E.L.)*” to promote healthier beverage choices among high school students.

Methods: Resource development was guided by the PRECEDE_PROCEED health education-planning model. The inquiry targeted students in four grade nine classes (2 classes in urban schools and 2 classes in a rural school) matched by neighborhood and beverage accessibility, arranging participants into intervention, and comparison groups. Another trial was also completed in a class primarily of aboriginal students. Nutrition related attitudes and behavioral intentions and beverage consumption patterns were assessed using food frequency questionnaires and serial 24-hour recalls. For each group, a pre- and post-test (one week following intervention and four months later) was carried out to assess participant’s nutrition knowledge gained, attitudes and changes in behavior relating to healthy beverage choices.

Results: The pre-test showed that there was no significant difference between beverages consumed by students in urban and rural schools; however, the aboriginal students consumed significantly higher amount of milk and soft drinks. Students, particularly girls, tended to replace their milk intake by consuming soft drinks. Overall, participants in the intervention group showed a statistically significant improvement in general nutrition-related knowledge, attitudes and healthy behaviour.

Implications & Conclusions: A multifactorial and interactive nutrition education program “*F.U.E.L.*” and its evaluation demonstrated a clear improvement in nutrition-related knowledge, attitude and behaviour intentions.

Wellness and Public Health: Adults

Food-related knowledge, attitudes, eating patterns and intended classroom food practices of Bachelor of Education students

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Objectives: School teachers can have a positive impact on students’ eating habits through their nutrition knowledge, and by acting as positive role models, and by avoiding unhealthy classroom food practices, such as using unhealthy foods as rewards. The objective of this study was to describe the food related knowledge, attitudes, eating patterns and intended classroom food practices of Bachelor of Education (BEd) students about to enter the teaching profession, and to identify factors

associated with classroom food practices and eating patterns.

Methods: 103 students enrolled in the final year of the BEd program at MSVU, with at least 22 weeks of practice teaching experience, completed a self-administered questionnaire adapted from the TEENS Teaching Staff Survey. Mixed model analysis of variance using constructed dependent and independent variables was used to assess the association between food related knowledge, behaviors and practices.

Results: Although 93% of respondents confirmed the importance of a healthy school food environment, two-thirds reported using unhealthy classroom food practices, 65% reported high-fat intakes and most (72%) respondents had mid-to-low nutrition knowledge levels. Respondents who demonstrated ‘less support for a healthy school environment’ were more likely to promote unhealthy classroom food practices.

Implications and Conclusions: Results suggest that BEd students report knowledge, attitudes and behaviours which may act as barriers to their having a positive impact on students' eating habits in their future role as teachers. Study findings reinforce the need to have policies and programs that support teachers in establishing healthy classroom practices and the need for compulsory nutrition education training for BEd students.

L'alimentation telle que décrite et photographiée par les hommes québécois de 18 à 24 ans vivant en appartement

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Objectif: Bien qu'encore aujourd'hui négligés dans le domaine de la recherche en santé, les comportements alimentaires des hommes de 18 à 24 ans vivant en appartement méritent une attention particulière en nutrition préventive. Les données présentées visent à décrire la qualité de l'alimentation de ces hommes et les défis qu'ils rencontrent.

Méthodologie: Le projet combine deux approches qualitatives : la photographie et l'entrevue. Chaque participant a utilisé deux caméras jetables pour prendre une série de photos de son environnement alimentaire. Chaque participant devait ensuite les commenter en entrevue. Les entrevues ont été enregistrées et retranscrites pour analyse.

Résultats: Quinze hommes (22,8 ans \pm 1,61) ont collaboré à cette étude. L'alimentation des participants est peu variée, pauvre en légumes, en fruits, en aliments riches en fibres alimentaires et riche en matières grasses et en sodium. Bien que la plupart des participants indiquent ne pas vouloir modifier leurs habitudes alimentaires au moment de l'étude, ceux-ci disent désirer mieux manger et varier leur alimentation. Mieux manger prend toutefois des significations différentes d'un participant à un autre. Les motivations évoquées pour mieux manger sont la santé, la qualité de vie, l'énergie et la gestion du poids. Les obstacles sont le manque de notions en cuisine, le manque de motivation à planifier et à préparer les aliments, la solitude et le budget alimentaire.

Implication et conclusion : La combinaison de photographies et d'entrevues permet de décrire et comprendre les motivations et les obstacles à une saine alimentation. Cette approche s'ajoute aux méthodes traditionnelles visant à documenter les comportements dans le but d'élaborer des conseils toujours mieux adaptés aux réalités de la vie quotidienne.

Initiation of community action around promotion of healthy eating and active living using community mapping tools

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Purpose: Prevalence of childhood obesity in Canada is on a rise due to changes in social and physical environments that create barriers to good nutrition and physical activity. A community development approach was used to mobilize communities to promote actions related to healthy eating and active living (HEAL).

Description of Process or Content: A series of mapping tools were developed to assist communities in gathering relevant information on local resources, barriers and gaps in the area of HEAL. Process evaluation with focus groups and in-depth interviews were used to capture highlights and challenges related to the use of mapping tools.

Project Summary: Communities found using mapping tools challenging. Issues surfaced with respect to wording and applicability of the tools, data analysis, interpretation and the mapping process. Despite challenges, all three communities successfully completed the mapping process. Communities were able to utilize the resulting data, develop and implement action plans promoting HEAL and confirm the importance of having community data to validate community actions.

Recommendations & Conclusions: Our findings suggest that a community development process using mapping tools can be an effective way for mobilizing communities and promote activities for HEAL. By enhancing user-friendliness of mapping tools and allowing flexibility around selection of tools and timing for their use, the tools will be a valuable resource for communities in assessing existing gaps and resources and focusing new actions that have potential to be sustained in the long-term. This project has increased the level of awareness around HEAL and strengthened collaborations in communities.

Content and thematic analyses of calcium and weight messages in Canadian women's magazines

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Objectives: Osteoporosis affects 1.4 million Canadian women. Maximizing bone mass by age 30 may reduce this risk. Given that many Canadian women report obtaining nutrition information from magazines, and that messages about calcium and weight, both associated with bone mass, have not been analyzed in Canadian magazines, the purpose of this study was to investigate the frequency and content of calcium and weight

messages in Canadian magazines for young women compared to those for mature women.

Methods: All issues of *Flare*, marketed to 18-34-year-old-women, and *Chatelaine*, marketed to 25-49-year-old-women, for 2000 and 2001 were surveyed. Relevant advertisements, articles and columns were identified using keywords. Frequency was tested with the Wilcoxon Signed Rank Sum test, and qualitative methods were used to analyze thematic content.

Results: Of 286 messages, 38% focused on calcium; 62% on weight. *Chatelaine* had more calcium and weight messages than *Flare*, significant only for calcium ($W=0, p<0.0001$). There were six calcium themes: milk as a nutrient-rich food, alternative sources of calcium, inhibitors of calcium absorption, benefits of exercise, taking charge of your own health and children's health. Weight messages concerned promoting and achieving the thin ideal, preventing obesity, and conversely, self-acceptance.

Implications & Conclusions: Calcium messages were directed to women beyond the prime age for maximizing bone density, but some messages in *Chatelaine* provided advice for children. Weight messages in both magazines primarily focused on achieving thinness, although some promoted self-acceptance. *Flare's* focus on weight with limited calcium information, inadvertently promotes a lifestyle that may increase risk for osteoporosis. Dietitians can collaborate with magazines for young women to increase coverage of calcium and osteoporosis.

Evaluation of a national project promoting healthy eating and active living messages for diabetes prevention

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Purpose: The Media and the Message project, funded by Health Canada's Diabetes Strategy and headed by Dietitians of Canada, aimed to raise awareness of diabetes risk factors and to enhance access by the public to credible, up-to-date, healthy eating and active living messages in the media. Nineteen cross-country media training workshops taught interdisciplinary groups of health professionals both effective media strategies and key diabetes prevention messages. Evaluation was integral to the project, with both the process and outcomes assessed using Health Canada's Population Health Approach.

Description of Process or Content: The process evaluation tracked the timeline and budget with discrepancies being recorded and explained. Questionnaires were created: 1) to evaluate the effectiveness of advisory committee conference calls and 2) to determine participants' perceptions of the benefit of the workshops and resources. Information tracked through the process evaluation was relayed to the advisory committee to allow for timely changes to the

project. A pre-post workshop and three month follow-up questionnaire format and an on-line media tracking tool were used to collect outcome data and to measure changes in confidence and media behaviour.

Project Summary: Greater than 80% of participants reported that the workshop and resources were appropriate. Three month and one year follow-up revealed a significant increase in confidence in all media activities taught in the workshops. While there was no change in media activity based on pre-post workshop questionnaires, over 300 media stories were reported on the on-line tracking tool.

Recommendations and Conclusions: To translate increased confidence into behavioural change, future media training workshops should contain a large practical element, and be followed by an advanced workshop once participants have tested out their new skills.

Effect of nutrition counseling as part of a Nutrition, Exercise and Lifestyle Intervention Program (NELIP) for pregnant and postpartum women, on prevention of gestational and type 2 diabetes

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Objectives: Women who develop gestational diabetes mellitus (GDM) are at increased risk of developing type 2 diabetes. We hypothesized that NELIP would prevent excessive weight gain during pregnancy, GDM, and weight retention postpartum.

Methods: Fourteen pregnant women at risk for GDM were recruited. NELIP during pregnancy included individualized nutrition counseling by a dietitian. Postpartum, subjects were randomly assigned to continue to receive NELIP (I) (n=6) or not (NI) (n=8). NELIP postpartum included monthly follow-up with a dietitian until 12 months. Food intake, blood glucose and body weight were monitored at 16-20 weeks gestation (baseline) and weekly until delivery (NELIP during pregnancy), and at 2, 6 and 12 months postpartum.

Results: While on NELIP during pregnancy (n=14), average intake decreased from baseline for energy (9857 ± 659 vs. 8131 ± 386 kJ/day, $p=0.006$), carbohydrate (328 ± 28 vs. 247 ± 11 g/day, $p=0.007$), and iron (26 ± 3 vs. 14 ± 1 mg/day, $p=0.004$), while protein and folate intake remained the same. Weight gain was within recommended guidelines for pregnancy (mean = 0.42 kg/week). All blood glucose values were normal.

Average BMI was 27.4 ± 1.3 kg/m² pre-pregnancy and 26.7 ± 1.5 kg/m² at 12 months postpartum ($p=0.1$). Postpartum, there were no significant differences in nutrient intake and BMI between the I and NI groups.

Implications & conclusions: Individualized nutrition counseling as part of NELIP was beneficial to these pregnant women, who achieved adequate nutrient intake,

healthy weight gain and normoglycemia. Weight retention postpartum was prevented. These results suggest that NELIP may help decrease the occurrence of GDM in women at risk, and potentially the development of type 2 diabetes.

Low rates of iron deficiency anemia in women one-year postpartum

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Objectives: Current prevalence data on iron deficiency anemia (IDA) in women of childbearing age is lacking in Canada and dietary surveys have suggested that some women may not be obtaining adequate amounts of iron in their diet. This study estimated the prevalence of IDA in women one-year postpartum living in central Montreal.

Methods: Women 10 to 15 months postpartum were identified through the list of registered births from July 2002 to August 2003 in four districts of Montreal. Home visits were conducted and socio-demographic and health information was collected through an interviewer-administered questionnaire. Iron intake was assessed by a food frequency questionnaire and blood samples were obtained by venipuncture. Mothers with at least two of the following laboratory values were considered to have IDA: serum ferritin < 12 µg/L, mean corpuscular volume (MCV) < 80 fL and hemoglobin < 120 g/L. Anemia was defined as having a low hemoglobin level and iron deficiency was defined as having a low serum ferritin level. **Results:** Blood samples were analysed for 201 women. The estimates of prevalence of anemia, iron deficiency and IDA were 7.0% (95% confidence interval [CI] 3.8%-10.9%), 5.5% (95% CI 2.5%-8.9%) and 2.5% (95% CI 0.3%-4.7%) respectively. Income levels were variable with 53% of mothers living below the low-income cutoff for Canadians. Despite this, anemia, iron deficiency and IDA were not significantly related to income. Anemia was not related to dietary iron intake.

Implications and conclusions: The prevalence of IDA is low among healthy women one-year postpartum living in central Montreal.

Covariates associated with dependence in meal preparation and grocery shopping in community-living seniors

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Objectives: Dependence in meal preparation and/or grocery shopping leads to nutritional risk in community-living seniors. Potential factors that lead to dependence in these activities have rarely been investigated. The purpose of this analysis was to determine factors independently associated with dependence in these activities.

Methods: General community-living seniors (n=132) and cognitively well seniors who attended a geriatric clinic (n=61) participated. Participants underwent a comprehensive nutrition assessment including medical information, health status, fall history, anthropometric measures, dietary intake, examination of lifestyle and social factors, and performance measures (e.g. Timed up and Go test [TUG]). Functional ability was assessed for 14 basic/instrumental activities of daily living. Seniors identified if they were dependent (0), needed some help (1) or totally independent (2) in these activities and ordinal regression (scale 0-4; (n=174) with complementary link used to identify independent covariates.

Results: The sample was 62% female and 34% lived alone; mean age was 75 +/- 6.4 years. Dependence in shopping (3.6% unable, 21.8% need help) was more prevalent than dependence in meal preparation (5.2% unable, 13.5% need help). The final model identified that slower performance on TUG (-0.22, 95% CI -0.3, -0.14), lower mid arm muscle area (0.001, 95% CI 0.00, 0.001), more visits by family (-0.06, 95% CI -0.08, -0.03), male gender (-2.5, 95% CI -3.4, -1.5), infrequent driving (-2.2, 95% CI -3.0, -1.4), stable weight (-1.1, 95% CI -2.1, -0.2), and poor perceived health (-1.5, 95% CI -2.2, -0.8) were independently associated with dependence in these activities.

Implications/Conclusions: Poor functional performance and low muscle mass are factors that can be targeted for intervention in an attempt to improve food related function and thus nutritional risk. Prospective investigations are required to confirm these findings.

Food and water handling practices of seniors in a boil water advisory emergency

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Objectives: Boil water advisories (BWAs) are issued when municipal drinking water supplies are contaminated with a microbial hazard. Little detailed information exists about in-home actions of seniors taken to ensure personal safety during a waterborne emergency. The purpose of the research was to assess the impact of a BWA event on in-home food and water handling practices where 7 people died in Walkerton in May 2000.

Methods: Fifty-eight adult respondents, of which 24 were Seniors, answered open-ended questions in focus groups or telephone interviews related to the 198-day BWA. This retrospective examination employed a purposive sample with a snowball recruitment technique. In-home food and water handling practices were content analyzed using descriptive statistics.

Results: Two-thirds of seniors complied with the BWA the day it was issued. Of those volunteering information about personal hygiene practices, 74% mentioned use of the recommended bleach-based hand rinse. Sixty-one

percent used potentially risky practices for washing dishes. Seniors tended to use tap water more frequently for kitchen cleanup but not always with a disinfectant. Seniors (65%) reported consuming the same amount of water after the BWA event as before, and 57% were still unable to drink water from the tap 2 years after the incident.

Implications & Conclusions: Issues requiring attention include the importance of attending to the needs of higher-risk groups such as seniors who fail to acknowledge they are at higher risk or those who do not purchase fresh produce for the duration of such an event. The results are of greatest use to those preparing advisory messages for the general public or food and health professionals working with individuals during a waterborne or foodborne event.

Using the resident assessment instrument for home care to identify nutrition risk in seniors

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Objective: The Resident Assessment Tool for Home Care (RAI-HC®) is used to assess client care needs in Canada and internationally. The purpose of this study was to identify items within the RAI-HC® associated with nutritional risk in seniors.

Methods: Nutrition risk factors identified from three focus groups of case managers from Community Care Access Centers (CCAC's) in Southern Ontario, and five key informant interviews with registered dietitians (RD), were triangulated against the risk factors identified by five RD's who participated in a nominal group. Logistic regression analysis (SAS version 8.2®) was used to identify which of the identified 23 RAI-HC® items were associated with nutritional risk, defined as the presence of any of unplanned weight loss, cachexia or decreased food intake. The data set contained all first RAI-HC® assessments from a sample of CCAC clients aged 65 years and older (n=4552) who participated in the Ontario RAI-HC® pilot study.

Results: Poor appetite (OR 6.0, 95%CI: 4.7-7.6), low fluid intake (OR 6.6, 95%CI: 4.0-11.0), palliative care (OR 4.9, 95%CI: 2.8-8.7), functional decline (OR 2.2, 95%CI: 1.8-2.8), skin integrity (OR 1.7, 95%CI: 1.3-2.3), medical change (OR 1.4, 95%CI: 1.1-1.7), swallowing difficulty (OR 1.8, 95%CI: 1.3-2.7), chewing difficulty (OR 1.5, 95%CI: 1.1-2.0), social activity (OR 1.3, 95%CI: 1.0-1.7), mood decline (OR 1.3, 95%CI: 1.0-1.8), and self reported poor health (OR 1.8, 95%CI: 1.4-2.2) were associated with nutritional risk in the final regression model (c=.84).

Implications and Conclusions: Further development is required to determine the best subset of RAI-HC® items that could be used to develop an embedded algorithm to predict nutrition risk in this subpopulation.

Nutritional Assessment and Therapy: Pediatrics

Nutrient composition of hindmilk produced by mothers of very low birth weight (VLBW) infants born at <28 weeks gestation

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Objectives: Feeding VLBW infants their mothers' hindmilk has been proposed as a means of increasing the energy density of fortified breast milk. Hindmilk is defined as milk produced after the first 3 minutes of milk flow, and has a higher fat and energy concentration than foremilk. Information is lacking on the fat-soluble vitamin content of hindmilk. The objectives of this study were: 1)measure concentrations of milk vitamin A, E, fat, energy, and nitrogen in foremilk vs. hindmilk fractions; 2)describe relationships between milk vitamin A and E concentrations and a)milk fat and energy concentrations, and b)maternal vitamin A and E intakes.

Methods: Mothers (n=24) collected 24 h foremilk and hindmilk samples on day 24 (21-30) postpartum. A food frequency questionnaire was administered and demographics and milk pumping data was collected.

Milks were analyzed by HPLC for vitamins (retinol, β -carotene, α -tocopherol and γ -tocopherol), gas chromatography for fatty acids, bomb calorimetry for energy and by Kjeldahl digestion and N analysis for total nitrogen.

Results: Milk volumes were significantly higher in hindmilk vs. foremilk (82%) as were concentrations of retinol (50%), α -tocopherol (80%), γ -tocopherol (70%), energy (30%), total fatty acids (70%), fatty acid groups (70-130%), and nitrogen (3%). Concentrations of milk retinol, α -tocopherol, and γ -tocopherol were positively related ($p<0.05$) to milk fatty acids and energy concentrations. Finally, no significant correlation between maternal vitamin intakes (food & supplements) and respective vitamin content in foremilk, hindmilk or composite milk were found.

Implications and Conclusions: This data is useful in assessing vitamin composition of human milk fortifiers and current recommendations for feeding VLBW infants.

Factors influencing infant feeding practices at an inner city hospital

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Objectives: Exclusive breastfeeding is currently recommended during the first 6 months of life. However, breastfeeding rates fall below this goal especially in women of ethnic minority and low income. The purpose of this study was to determine breastfeeding initiation rates and factors influencing infant feeding practices of mothers in a large urban inner-city hospital.

Methods: A prospective chart review of infant feeding practices was conducted on 146 consecutive mothers within 24-72 h of giving birth. Of these mothers, 84 participated in a researcher administered face-to-face interview prior to hospital discharge and were followed-up 6-8 weeks post-partum by telephone interview. The questionnaire contained 22 closed and open-ended questions addressing demographic, clinical, and attitudinal factors influencing breastfeeding.

Results: 90.4% of mothers initiated breastfeeding in hospital, either exclusively (63.7%) or along with supplemental formula (26.7%) and 9.6% exclusively formula fed. Mothers were more likely to supplement with formula if they were born outside Canada (OR=3.38, p=0.039), had heavier infants (3785 ± 446 vs. 3386 ± 426, p<0.001), experienced difficulty initiating breastfeeding (OR=7.25, p=0.02) and had lower income level (p=0.068). At 6-8 weeks post-partum, 87% of respondents (n=61) were still breastfeeding either exclusively (51%) or with formula supplementation (36%) and 13% were exclusively formula feeding.

Implications & Conclusions: Breastfeeding initiation rate appears higher than previously reported (83% in 1992) and only slightly declined (3.4%) at 6 weeks post-partum. Continuing efforts to support breastfeeding should target women born outside of Canada, those experiencing difficulties with breastfeeding, those with lower incomes, and those without the support of a partner.

Assessing the growth of infants and toddlers in tertiary care using different reference charts

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Objective: In a tertiary care setting, determine if the proportion of children ≤2 years defined to be at nutritional risk of under- or overnutrition when evaluating weight-for-age (WA), length-for-age (LA) and percent ideal body weight (%IBW) differs using the

Centers for Disease Control and Prevention (CDC), National Center for Health Statistics/ World Health Organization (NCHS) or Tanner-Whitehouse (Tanner) growth reference charts.

Methods: Lengths and weights were measured on infants (207 female, 341 male) <24 months at The Hospital for Sick Children. WA, LA and % IBW were electronically computed.

Results: The proportion of children whose WA plotted <3rd percentile (risk of undernutrition) was greater using the CDC (22.5%) than either NCHS (15.9%) or Tanner (19.2%) charts (P<0.05). Likewise, infants with %IBW <90 (risk of undernutrition) was greater using CDC (32.3%) than either NCHS (22.1%) or Tanner (25.9%) charts (P<0.05). Fewer children were classified as overweight or obese (%IBW ≥110) when using CDC (18.1%) than either NCHS (26.1%) or Tanner (22.4%) charts (P<0.05).

Implications & Conclusion: More children ≤2 years are considered at risk of undernutrition and less of overnutrition when using the CDC growth charts compared to NCHS or Tanner charts. These data suggest that switching to the CDC growth charts may result in an increase in dietitian referrals for nutritional assessment. Upon their release, we intend to compare CDC charts with the World Health Organization (WHO) charts generated from data on breastfed infants.

Development of a Healthy Growth in Children Toolkit to support implementation of the new growth monitoring standards

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Purpose: In March 2004, new growth monitoring standards were published outlining which growth charts to use with Canadian children, birth to 20 years. The introduction of new growth charts created the need for supplementary resources for health professionals and public education. A toolkit was developed for health professionals to use in public health clinics when assessing children's growth, age two months to six years.

Description of Process or Content: A group of public health nutritionists obtained funding from Alberta Health and Wellness to develop the toolkit. An advisory committee was formed to include input from public health nurses, eating disorder prevention specialists, a pediatrician, and medical officer of health. Toolkit components were developed through examining published literature, two focus groups with parents and two with public health nurses, and through adapting existing regional resources. Focus groups provided valuable insight into *how* parents want to hear information about their children's growth. In spring 2005, toolkits were distributed to all health regions, and posted on www.dthr.ab.ca/healthygrowth. The developed

toolkit contains a growth chart counseling guide, portion size visual tool, caregiver handouts (containing messages on healthy eating, active living and positive body image), health professional orientation tools, and suggested community initiatives. Toolkit evaluation is planned for late fall 2005.

Project Summary: Provincial collaboration and multi-disciplinary input have helped to create a toolkit for public health professionals to use when assessing children's growth, age two months to six years.

Recommendations and Conclusions: The toolkit's availability has increased provincial capacity to implement the growth monitoring standards. Working collaboratively has reduced duplication.

The consumption of nitrate containing foods and Type 1 diabetes in young children in Prince Edward Island

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Objectives: to compare consumption of food sources of dietary nitrates/nitrites between children with Type 1 Diabetes Mellitus (T1DM) and healthy controls.

Methods: A case control design was used to compare consumption between children diagnosed with T1DM (n=20) and randomly selected healthy controls (n=37), matched on gender and age of diagnosis. All children diagnosed with T1DM in PEI from 2001-2003 were included. A previously validated food frequency questionnaire was used, with a parent/caregiver acting as a surrogate. Chi square analysis was used to assess differences in the proportion of cases and controls consuming foods on a weekly and daily basis in the past year.

Results: Children with T1DM were more likely to consume applesauce (p<0.01), margarine (p<0.01), mayonnaise (p<0.05) and bread (p<0.03) on a weekly basis compared to controls; the latter two foods are significant sources of nitrites and nitrates, respectively. Hot dogs, a source of nitrates and nitrites, were consumed more often by cases than controls (70.0 vs 46.0%, respectively), although this was not statistically significant (p=0.08). Broccoli intake in the past year was higher among controls (p<0.01), indicating a possible protective effect. There were no group differences in daily food use.

Implications & Conclusions: Data suggest that dietary nitrates may play a role in the incidence of T1DM in that some foods higher in nitrate/nitrites were consumed more often among children with T1DM compared to controls. Future work includes analysis using actual

nitrate composition of foods and assessing the role of water borne nitrates in T1DM.

Energy expenditure and body composition of children and adolescents with muscular dystrophy: A pilot study

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Objectives: Few studies have investigated energy requirements of children with muscular dystrophy. The purpose of this pilot study was to: a) determine resting energy expenditure (REE) of children and adolescents with Duchenne muscular dystrophy (DMD) and Becker muscular dystrophy (BMD), b) assess growth, body composition and dietary intake of this population, and c) compare REE measured by indirect calorimetry to energy-estimating prediction equations such as the World Health Organization (WHO) formula or the Harris Benedict Equation (HBE).

Methods: A cross-sectional, convenience sample of boys attending the neurology clinic at the IWK Health Center, Halifax, N. S. and diagnosed with DMD (n=4; mean age 17.3 ± 5.1 yrs) and BMD (n=2; mean age 10.8 ± 4.2 yrs) agreed to participate in the study. REE was measured by closed circuit indirect calorimetry. Growth (weight, recumbent length) and body composition (four skin-folds and body circumferences) were measured using standardized recumbent techniques and compared to age and sex-related reference data. Dietary intake was assessed from 3-day weighed food records and compared to the DRI.

Results: Mean REE was 563 ± 484 kcal/d (2354 ± 2024 kJ/d) in the DMD group and 505 ± 175 kcal/d (2112 ± 732 kJ/d) in the BMD group; equal to 48% and 24.6% of the DRI for energy in the two groups respectively. In both groups, REE was significantly less than energy requirements calculated using the WHO and HB prediction equations. All subjects were obese with reduced muscle mass that was associated with reduced REE (p<0.03).

Implications and conclusions: Understanding energy requirements and their effect on body composition in this population will provide guidelines to assist caregivers in achieving optimal nutritional care.

Nutritional Assessment and Therapy: Primary Care/Long Term Care/Clinical

Feasibility and inter-method reliability of a new life events based weight questionnaire

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Objectives: Better methods of assessing retrospective weight history, especially weight cycling, are needed for epidemiological and counseling studies. The purpose of this research was to assess the feasibility and inter-method reliability of a new life-events calendar method to obtain weight history, compared to current self-administered questionnaires.

Methods: A convenience sample of adults completed both a retrospective self-administered weight history questionnaire (SAQ), and a life events calendar (LEC), which linked recall of body weight to significant personal events. The two methods were compared for inter-method reliability and time to completion.

Results: Twenty-six subjects (9 males, 17 females) with a mean age of 55 years and a BMI of 28.5 completed the study. Fifty percent or less could recall their childhood weight, depending on the age. Cumulative weight loss differed substantially by the two methods. Mean (\pm SD) intentional cumulative weight loss was 44 ± 55 pounds by SAQ vs. 22 ± 27 by LEC, while unintentional cumulative weight loss was 66 ± 177 pounds by SAQ vs. 12 ± 19 by LEC. There was also evidence of telescoping, using the traditional questionnaire method, as individuals remembered weight reliably, but tended to shift weight trends in time, compared to the life events calendar method.

Implications & Conclusions: Individuals can remember weight at certain ages reliably; but not weight change. Traditional methods used to assess weight cycling may overestimate the extent of weight fluctuation compared to the life events calendar method. The calendar method was determined to be not practical for most studies due to prolonged completion time (~30 minutes) and missing information.

What do family physicians think about the dissemination of nutrition information to their patients?

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Objectives: The primary objective of this study was to question a group of physicians about effective/appropriate sources of nutrition information.

Methods: A pretested questionnaire was administered by mail to all family physicians practicing in Newfoundland and Labrador (NL). It specifically addressed attitudes and behaviours pertaining to the dissemination of

nutrition information, challenges to providing nutritional advice to patients and the use of *Canada's Food Guide to Healthy Eating* (CFGHE).

Results: Of the initial 504 surveys administered, 235 were completed and returned. Most of the respondents were aware of CFGHE (95.7%) and 82.0% find it useful when discussing nutrition with patients, although only 45.2% have it posted in their practice setting. The majority of respondents indicated that a dietitian/nutritionist is both the most appropriate (81.2%) and the most effective (72.1%) primary health care provider to discuss nutrition with patients. A smaller number viewed family physicians as the most appropriate (17.9%) and most effective (24.8%) for this discussion. Challenges perceived by the physicians included: limited time during consultation visits (94.8%), insufficient training to provide good nutritional advice (65.9%), difficulty in motivating patients (59.1%), difficulty in discussing complex food and health information with patients (47.8%) and dissatisfaction with their ability to produce positive health changes (8.6%). To overcome such challenges the respondents indicated that increasing the number of dietitians/nutritionists accessible by family physicians (75.3%) and increasing nutrition education in medical school training (39.4%) would be most effective.

Implications & Conclusions: These findings suggest that NL family physicians recognize the importance of dietitians and this recognition can be used to advocate for a stronger presence of dietitians in health care.

Protein Content of Pureed Foods

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Objectives: In Saskatchewan long-term care (LTC) facilities, there are no standards for the preparation of pureed foods. As most nutritional analyses of LTC menus are carried out on the regular diet, the protein content of the pureed diet is unknown. The purpose of this study was to determine the protein content of the pureed diet and protein entrees and to determine the contribution of the protein entrée (noon and evening meal) to the total amount of protein offered per day.

Method: Nineteen LTC facilities in Saskatchewan and Ontario participated in the study. Each facility produced in-house pureed foods and provided two days of standard portion duplicate diets with additional portions of lunch and dinner protein entrees. All samples were weighed, dried and the percent moisture content was calculated. Protein content was measured directly using the Kjeldhal method.

Results: Saskatchewan duplicate diets were 1900 ± 369 g total weight/day and contained 57.9 ± 7.9 g protein/day.

The pureed protein entrees each averaged 93.6 ± 19.0 g/serving total weight, and provided 11.4 ± 2.4 g of protein/serving (39% of total protein offered). The Ontario duplicate diets were 2159 ± 757 g total weight/day and contained 74.6 ± 35.0 g of total protein/day. The pureed protein entrees averaged 107.9 ± 54.9 g/serving total weight and provided 12.2 ± 8.6 g of protein/serving (33% of total protein offered). Protein entrees were approximately 12% of energy as protein.

Implications & Conclusions: There was a wide variation in the protein content and serving size of pureed foods, thus quality control is needed. A variety of protein sources could be offered throughout the day to meet protein requirements rather than relying on protein entrées alone.

An integrated approach to managing complex diets at programs facilitated by healthcare team members in the long-term care facility

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Purpose: The enjoyment of food and drink is an integral part of the lives of residents in long-term care facilities. The Food and Travel Pass provides critical diet information to reduce the risk of adverse events at programs where food and drink are offered. The principles of quality of life and consent to treatment are utilized to ensure that the Pass reflects the informed consent and wishes of residents or their substitute decision makers.

Description of Process or Content: The Food and Travel Pass is completed on admission for residents in our facility. The Pass provides information regarding food allergies and diagnoses that impact on safe oral intake and can be accessed by any member of the healthcare team. The Pass is updated regularly at rounds and every time there is a change in diet information. An extensive ongoing education and audit program ensures that identified members of the healthcare team can complete and update the Pass and that any staff member who provides food or drink to residents can interpret the Pass.

Project Summary: The Food and Travel Pass has enabled the Registered Dietitians to manage and communicate the complex diet needs of residents and ensures that their wishes or the wishes of their substitute decision makers are documented and followed at programs.

Recommendations & Conclusions: The Food and Travel Pass provides the ability to successfully communicate special diet needs to any member of the healthcare team. The Pass minimizes the risk of adverse outcomes at programs while ensuring residents are able to safely enjoy the social aspects of food and drink.

Success of a short-term method to modify dietary glycemic index in pre-surgical patients

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Objectives: Patients with cardiovascular disease show evidence of metabolic syndrome characterized by hypertension, diabetes, insulin resistance and obesity. The literature has suggested a low glycemic index diet may be helpful in improving glycemic control and lipid profiles, and may positively decrease the risk associated with these co-morbidities. A simplistic and short-term approach to lower the dietary glycemic index of pre-surgical coronary artery bypass patients was successfully introduced at our centre as part of a larger investigation into peri-operative glycemic control.

Method: Participants were randomized to high or low glycemic index diets and were asked to consume a specified number of test food servings over the 3-week pre-surgical period. Test foods were provided. Servings were based upon body weight and 3-day food records, designed to replace forty percent of daily carbohydrate intake. Test foods were grain foods of either low (<80) or high (>80) glycemic index (bread scale), and participants were encouraged to substitute a habitually consumed grain food for an item on the list.

Results: Short-term substitution of high or low glycemic index test foods resulted in an average 9.0 unit increase, or 12.0 unit decrease, respectively in total dietary glycemic index calculated from 3-day food records. Total dietary glycemic index did not differ significantly between groups at baseline, but after 3 weeks was significantly lower in the low glycemic index group ($p < 0.05$).

Implications & Conclusions : Although other food groups affect glycemic response, introducing low glycemic index grain foods into the diet through a substitution methodology is an easily accessible concept that substantially reduces total dietary glycemic index in our experience with pre-surgical participants.

National standards of practice for oncology nutrition

K Biggs, S Gentleman, A Martens, C Morley, C Orphanidou, S Sekhon. Juravinski Cancer Centre, Hamilton, Ontario [E]*

Purpose: The Canadian Association of Provincial Cancer Agencies (CAPCA), and the Canadian Strategy for Cancer Control (CSCC) identified the development of Standards of Practice in oncology specialty areas as a key priority.

Description of Process or Content: A volunteer working group of oncology dietitians who are members of the Dietitians of Canada Oncology Network reviewed the literature and existing standards of practice. In early 2003, an external review of the document was conducted. Feedback from the Dietitians of Canada

Oncology Network, provincial supportive cancer care leaders, cancer centre administrators, CAPCA and CSCC leaders, the Canadian Association for Nursing in Oncology and The College of Family Physicians of Canada, was positive and incorporated into the document. This document was presented at the annual meeting of Dietitians of Canada in Calgary in May 2003, and at the annual meeting of CAPCA in New Brunswick in October 2003. Since that time our working group continued with revisions and have focused on a dissemination strategy. The dissemination process utilized many different formats. The final copy of the Standards was mailed to over 100 key stakeholders and is available on the CSCC and DC websites.

Project Summary: The final Standards consist of six sections containing 29 Standards of Practice. A preamble on Nutritional Care in Oncology and Nutrition Issues in Persons Living with Cancer is included.

Recommendations and Conclusions: The National Standards for Oncology Nutrition are a crucial step in ensuring accessible, high quality, and consistent Oncology Nutrition care in cancer care facilities across Canada. The dietitian working group members found the process of developing NSP-ON rewarding and worthwhile. A process of evaluation is now being considered.

Dietary compliance in a clinical trial of a low-fat diet for breast cancer prevention

*A Lenny*¹, P Hoddinot¹, E Wu², C Greenberg³, G Hislop² and N Boyd³ for the Diet and Breast Cancer Prevention Study Group. ¹ London Regional Cancer Program, London Ontario, ² British Columbia Cancer Agency, Vancouver, British Columbia, ³ Ontario Cancer Institute, Toronto, Ontario [E]*

Purpose: The long-term goal of this randomized multi-centre trial is to determine if intervention in women with extensive mammographic densities (a risk factor for breast cancer) with a low-fat, high-carbohydrate diet will reduce the incidence of breast cancer. Maintenance of a substantial difference in fat intake between the intervention and control groups is key for the success of this trial.

Description of Process or Content: Women with extensive mammographic densities were recruited and randomized to an intervention or control group. The intervention group is given intensive individual counselling to reduce their intake of total fat to a target of 15% of energy and increase intake of carbohydrate to maintain intake of total energy. Recruitment was completed in December 1998 with a total of 4693 women and the trial will end in December 2005 with an average of 10 years of follow-up per subject.

Project Summary: Dietary compliance results, based on multiple food records, show the intervention group to have an average intake of 21% of energy from fat, and the control group an average of 31% of energy from fat.

The difference in dietary fat intake between the study groups is maintained out to at least 10 years of follow-up. Changes in body weight and blood lipids provide objective support a long-term change in dietary fat intake.

Recommendations and Conclusions: Intensive individual dietary counselling resulted in substantial long-term changes in dietary fat intake. The results of this trial will have important implications for breast cancer prevention.

Nutrient analysis of food records in a clinical trial of a low-fat diet for breast cancer prevention

L Gougeon, C Petryschuk, D Acal, C Greenberg, and N Boyd for the Diet and Breast Cancer Prevention Study Group. Ontario Cancer Institute, Toronto, Ontario [E]*

Purpose: In an on-going randomized multi-centre trial of intervention with a low-fat, high-carbohydrate diet for prevention of breast cancer, dietary compliance in the intervention group, and the possibility of dietary change in the control group, is assessed by nutrient analysis of food records. Quality control procedures are crucial to ensure that high quality nutrient data is obtained in an efficient manner.

Process: Three non-consecutive days of food records are collected at regular intervals from study participants. Food records are reviewed by a study dietitian to obtain further detail on food amounts and description. Nutrient analysis is performed using the Nutrient Data System (NDS) from the Nutrition Coordinating Center (Minneapolis) by dietitians who are trained and certified in use of this system. To increase accuracy and consistency of data, data entry rules are established for food items that are missing from the database or have incomplete descriptions. Food records with out of range values for fat or energy intake are reviewed. Periodically, subsets of food records are re-entered to check reproducibility of the nutrient data.

Project Summary: To date, 54,600 number of food records have been entered. Reproducibility is high, with an average correlation of 0.9 for all nutrients. Most discrepancies found during data re-entry occurred in meats, mixed dishes and cookies.

Recommendations and Conclusions: Nutrient analysis of food records requires a large time commitment and comprehensive quality control procedures. These procedures have resulted in high quality, reproducible nutrient data in long-term low-fat dietary intervention trial.

Prevalence of antioxidant supplement use in breast cancer patients receiving chemotherapy

HM Marcus, PP Parsons and AM Duncan. Department of Human Biology and Nutritional Sciences, University of Guelph, Guelph, Ontario [R]*

Objectives: The use of antioxidant supplements during chemotherapy is controversial as they have been linked with both enhancement and inhibition of chemotherapy. A greater understanding of the use of antioxidant supplements by patients undergoing chemotherapy would therefore be informative to health care professionals working with these patients. The primary purpose of this study was to determine the prevalence of antioxidant supplement use by females with breast cancer receiving chemotherapy. Secondary purposes were to identify specific types of antioxidants consumed and to explore the attitudes and rationales for antioxidant supplement use.

Methods: A total of 75 women with breast cancer receiving chemotherapy completed a detailed questionnaire that asked questions related to their use of antioxidant supplements as well as demographic and medical characteristics.

Results: Prevalence of antioxidant use was 56% with the most commonly consumed supplements including multivitamins/minerals, vitamin C and vitamin E. There were no significant differences in demographic or medical characteristics between supplement users and non-users. The majority of supplement users reported consuming antioxidants to supplement their diet/meet their nutritional requirements or for general health. The most common sources of supplement information were word of mouth and books/magazines, closely followed by physicians. Subjects who did not consume antioxidant supplements reported reasons including that a health professional advised against it or that they felt they already ate healthy.

Implications and Conclusions: This study found that the prevalence of antioxidant supplement use in a sample of female breast cancer patients receiving chemotherapy was 56%. The information gathered about their antioxidant supplement use will provide health care professionals with a better understanding of the antioxidant use of their patients.

Assessing current dietetic practice of cystic fibrosis (CF) in pregnancy

M Faust, S Burstein, R Robert, P Darling, E Tullis, Department of Nutrition and Adult CF Program, St. Michael's Hospital (SMH), Toronto, Ontario [R]*

Objectives: Women with CF often have compromised nutritional status which may impact birth outcome. This study aimed to review current dietetic practice of CF during pregnancy following an evidence based approach.

Methods: Original studies from 1980 were reviewed for relationship between nutritional status and birth outcome.

A survey sent to thirty CF experts solicited information on nutritional practices during pregnancy. A questionnaire was administered to women pregnant between 1991-2004 in the Toronto Adult CF clinic.

Results: Relevant literature revealed associations between birth outcome, weight gain, pre-pregnancy BMI; however, no other nutritional indices were described. There were no published nutrition guidelines on pregnancy in CF. Of thirteen women who participated, 69% received nutrition education during pregnancy. 6/13 and 4/7 encountered weight gain difficulty during first and second pregnancy, and reflux was commonly experienced. Some information on the women was not consistently captured. Of nine experts who responded, 8/9 felt women should have pre-pregnancy BMI's >20. All experts thought patients should be seen at least monthly during pregnancy. 100% recommended ADEK with additional folic acid prior to and during pregnancy. Target weight gain varied among experts (3-18kg). Most (7/9) felt enteral nutrition should be considered if poor weight gain occurred, and if adequate weight gain was not achieved, 6/9 thought total parenteral nutrition should be considered.

Implications & Conclusions: This study described current practice, expert opinion, consistency of monitoring CF women during pregnancy at SMH as well as women's self-perceived satisfaction with nutritional care. This study has prompted improvements to patient monitoring, data capture for the CF database and nutrition educational materials for pregnant women with CF.

Characteristics of wounds in patients undergoing hemodialysis at St. Michael's Hospital and the factors associated with wound development

L Timoshenko, M Brotherwood, K Burleigh, L Teague and PB Darling, St. Michael's Hospital, Toronto, Ontario [R]*

Objectives: Hemodialysis (HD) patients have a high prevalence of malnutrition that, combined with nutrient losses during HD, may increase their risk for wound development. This observational study aimed to describe wounds in HD patients and to determine the associations between risk for developing wounds and: malnutrition (serum albumin <35g/L, BMI<19 and unintentional weight loss), elevated calcium x phosphorus product, CVD, HTN, vitamin and mineral supplementation, diabetes and inactivity.

Methods: This was a descriptive, case-control study involving patients receiving HD at St. Michael's Hospital in March-June 2003. Subjects included 12 patients with wounds (case group) and 22 without wounds (control group) matched by age, gender and length of time on HD. Data was collected from face-to-face interviews, routine laboratory tests and medical records. Description of wounds was obtained from the

wound care team assessment and medical records. For the case group, information was gathered before and after wound development. All data was analyzed using SPSS program.

Results: 75% of case group and 27% of controls had diabetes and none were malnourished, based on criteria used. Diabetes was the strongest independent risk factor for developing wounds in HD patients (OR=7.998, 1.601-39.954, p=0.012). Routine exercise was negatively associated with wound development

(OR=0.091, 0.010-0.830, p=0.034), and level of physical activity was strongly associated with diabetes (p=0.004). No other investigated factors, including malnutrition, were associated with wound development. Subjects in the case group experienced a significant increase in body weight after they developed wounds (p=0.034).

Implications & Conclusions: Encouraging physical exercise in HD patients who have diabetes and impaired mobility may help reduce their risk of wound development.

Nutritional Therapy: Case Management

Assessing effectiveness and costs of dietitian services within a primary health care demonstration project - lessons learned

B Davidson, T Schneider, E West, D Northmore, L Dietrich, J Witt, PM Brauer. Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario and Dietitians of Canada, Toronto, Ontario [E]*

Purpose: Costing analysis and assessment of counselling effectiveness are being conducted as part of a larger project to develop a set of guidance materials (called a Practice Management Package) for interdisciplinary nutrition services in Family Health Teams (FHTs) and Networks (FHNs); emerging primary health care (PHC) service models in Ontario.

Description of Process or Content: The dietitians (RDs) working in the three FHNs have collected most data. Costs included direct expenses such as salary, as well as assessment of other costs. For example, RD interactions with other health professionals were tracked for two 2-week periods. Receptionist time making appointments for the RD was also assessed. All staff was asked to report on their change in routine as a result of adding the RD to the staff complement. Insight on RD time was assessed by workload measurement for the same two 2-week periods, including travel time. The objectives for the counseling evaluation were to: 1) describe the mix of clients counselled, 2) describe the RD counselling practices (time, focus), 3) assess clinical effectiveness for selected common clinical problems (e.g. body weight, lipid levels), and 4) to determine change in generic health related quality of life (SF36 questionnaire – Medical Outcomes Trust, QualityMetric, Lincoln, RI). Informed consent was obtained from each subject.

Project Summary: Particularly challenging to adapt in the PHC setting were methods to ensure staff in all offices could confidentially complete the change in routine questionnaire, methods to obtain informed consent from diet counselling subjects and to ensure RDs

were blinded to subject status over the counselling period.

Recommendations and Conclusions: While the study is ongoing, the methods developed for this project may be adapted to evaluation of other nutrition services in other settings.

Development of a model to determine inpatient dietitian direct care time

C Basualdo-Hammond, Nutrition Service, Capital Health, Edmonton, Alberta [R]

Objectives: This study was undertaken to 1) validate whether the Capital Health Nutrition Risk Classification tool provides a measure of patient acuity; 2) to improve understanding of what factors impact dietitian time per case, 3) and to determine if regression analysis can be used to develop a predictive model for determining dietitian staffing requirements.

Methods: Dietitian direct patient care workload measurement data, and the nutrition risk classification level, reason for service code, age, gender and main diagnosis for patients seen was obtained for the Capital Health region from 2002-2003. Analysis focused on tertiary care, adults (N=5811) and pediatrics (N=2610). Stepwise linear regression analysis was used to study what factors contributed to time per case.

Results: Length of stay for patients seen was 23.2 ± 30.6 days for adults and 13.0 ± 18.3 days for pediatrics. The Nutrition Risk Classification (level 1 to 4) and reason for service (education, malnutrition, enteral and parenteral nutrition) significantly contributed to the model and predicted time per case. Age and gender (adults only) significantly correlated with time but provided little contribution to the model. Repeat case contributed to the model for pediatrics only. Number of visits provided more contribution to the model than length of stay. Including number of visits, risk levels and service provided created linear regression models with an adjusted R^2 greater than 0.6 (both adults and

pediatrics), which is indicative of a strongly predictive model.

Implications & Conclusions: Patients with higher nutrition risk required more time per case. Regression equations may provide an estimate of dietitian time per case needed in tertiary care. The results of this study will be of value to nutrition service managers in predicting dietitian workload.

Implementing a change in service delivery regarding the inpatient dietitian role: a quality improvement project

J Cull, A Matsuno, T Langlois, S Mackenzie, D Barriault, A. Jamal. Clinical Nutrition, Adult Acute Care, Calgary Health Region, Calgary, Alberta [E]*

Purpose: Clinical Nutrition Services in the Calgary Health Region implemented a new service model in acute care. A “consult only” service was established with delegation of some tasks previously performed by dietitians to more appropriate services. The purpose was to evaluate appropriateness and number of consults from pre to post-implementation and to identify when dietitian consults were recommended but not ordered. Units with inappropriate or missed consults would require further education.

Description of Process or Content: To ensure dietitians were only consulted for core roles, education to dietitians and other health care professionals was essential. Data on appropriateness of consults and missed consults was collected pre-implementation and three and seven months post-implementation, compiled in a Microsoft Access Database and extracted.

Project Summary: The number of inappropriate consults decreased, but the change in percentage of inappropriate consults from pre to post implementation was minor (pre - 199/499 (39.9%), 3 months post - 165/468 (35.3%), 7 months post - 140/444 (31.5 %)). The number of missed consults did not decrease from pre to 3 months post implementation, but did decrease 7 months post-implementation (pre - 63, 3 months post - 60, 7 months post - 32). Reasons for inappropriate and missed consults were identified for discussion at future education sessions.

Recommendations and Conclusions: Ongoing education of all stakeholders including the inpatient dietitians is necessary whenever a change in service delivery is implemented. An education schedule to reinforce the dietitian role will be established for all units and dietitians to ensure consistency of care. Data will be collected after re-education to determine any further improvements.

Guidelines and Pathways: Use of tools to standardize practice and promote the role of the dietitian on the interdisciplinary team

J Payne, H Knight, S Mackenzie, A Matsuno, A Sheppard, B Whitmore, S Follett-Bick⁺, Clinical Nutrition, ⁺Nutrition and Food Services, Adult Acute Care, Calgary Health Region, Calgary, Alberta [E]*

Purpose: Clinical Nutrition services in adult acute care settings in the Calgary Health Region underwent a significant service redesign in 2004. As a result, 2 tools and 3 algorithms were developed to promote the role of the dietitian and support and guide healthcare professionals (HCPs) in provision of appropriate and timely nutrition care to patients.

Description of Process or Content: The Role of the Dietitian tool provides guidelines on how and when to consult the dietitian, for example to consult for all nutrition support, GI surgeries and survival skill patient education. The Maximizing Oral Intake tool provides guidelines to nursing staff on how to optimize patient oral intake prior to consulting the dietitian. Three nutrition support algorithms were developed to promote safe and timely initiation of enteral feeding of patients by unit staff on medical or surgical units and for cases of acute pancreatitis.

Project summary: To support the new service model for Clinical Nutrition, tools and algorithms are available to HCPs in adult acute care in the Calgary Health Region and are the basis for staff education provided by unit dietitians.

Recommendations & Conclusions: Tools and algorithms provide standards of care for HCPs when consulting the dietitian, when promoting adequate oral intake and when managing the initial stages of nutrition support in acute care. Use of these tools and algorithms leads to more appropriate and timely nutrition care of patients by dietitians and HCPs.

Development, implementation and evaluation of a pediatric clinical nutrition service in a community health setting

M Storey, J Silzer, A Naimish, M Quach, and K Watson-Jarvis. Alberta Children's Hospital, Women's and Child Health Portfolio, Calgary Health Region, Calgary, Alberta [E]*

Purpose: Limited access to pediatric nutrition services for primary health care providers within the region was identified as a significant gap. The purpose of the pilot was to develop, implement and evaluate a community-based clinical nutrition service for nutritionally at-risk children (primarily 0-6 years), screened and referred by public health nurses and family physicians.

Description of Process or Content: This project was undertaken following a regional review identifying a lack of access to individualized pediatric nutrition

consultation. Steps included: 1) reallocation of RD resources to a new community health centre 2) collection of baseline surveys from public health nurses, family physicians and pediatricians 3) development of linkages and communication strategies 4) development of referral process and criteria, and infrastructure 5) data collection for evaluation, including demographic data, description of nutrition problems referred, health care provider and family satisfaction surveys, and retrospective chart review determining timeliness and appropriateness of referral.

Project Summary: Following 9 months of service, surveys from public health nurses and families indicate a high level of satisfaction with the service and improved access and timeliness of service for clients. Preliminary analysis indicates that the main nutrition problems referred include poor growth, infant feeding problems, allergies and excessive weight gain/obesity.

Recommendations and Conclusion: A community-based pediatric nutrition service providing individualized nutrition consultation, with close linkages to public health nurses and physicians, results in improved access and more timely intervention for nutritionally at risk infants and young children. Further evaluation will include post implementation surveys of family physicians, ongoing family satisfaction surveys, and measurement of health outcomes.

Redesigning clinical nutrition services for adults in the Calgary Health Region

A Matsuno, H Knight, S Mackenzie, A Sheppard. Clinical Nutrition, Adult Acute Care, Calgary Health Region, Calgary, Alberta [E]*

Purpose: Improved access to community-based clinical support services was a priority set out by the Calgary Health Region in 2002. The purpose of redesigning Clinical Nutrition Services was to provide the right service to patients in the right place and at the right time, promote the registered dietitian (RD) as the nutrition expert, identify core roles of RDs, and delegate tasks that might be more appropriately performed by staff in other services.

Description of Process or Content: Functions performed by RDs were identified, and ultimately areas to be developed or created (sow), e.g. services to GI clinic; those to be enhanced (grow), e.g. regular participation in medical student, resident and nursing education; those we did well (harvest) e.g. nutrition support consults; and those to stop doing (plow) e.g. food service related issues. This framework became the basis of our plan for service delivery.

Project summary: Working from the framework of “sow, grow, harvest, plow”, identifying core roles, and collaborating with members of nursing and food services, nine full time equivalents (RDs) were re-

allocated to community-based clinical nutrition and promotion services.

Recommendations and conclusions: The “sow, grow, harvest, plow” framework was used to re-allocate services. With regional leadership and support to incorporate quality improvement and research into practice, Clinical Nutrition services is able to foster an environment of continual questioning of practice and strive to provide the right patient service, in the right place and at the right time. This model has since been used as a guide for re-designing services for the other allied health professionals in the Calgary Health Region.

Using a program logic model to streamline acute care clinical nutrition services

S Mackenzie, S Erfle, H Knight, A Matsuno, A Sheppard. Clinical Nutrition, Adult Acute Care, Calgary Health Region, Calgary, Alberta [E]*

Purpose: Clinical Nutrition Services in adult acute care in the Calgary Health Region underwent a significant service redesign from 2003-2004. To help the service stay outcome-focused rather than activity-focused a Program Logic Model (PLM) was developed to clarify service delivery and outcomes.

Description of Process or Content: More commonly used in community nutrition and health promotion settings, the PLM is a way of clearly articulating what a service hopes to achieve and how it plans to achieve it. The service’s purpose, target population, available resources, impact to the system, program strategies, and short term changes were identified in the PLM.

Project Summary: The target populations identified were: surgical and medical patients at nutritional risk and patients requiring nutrition support. Service activities identified were: assessment, discharge, referral to community-based programs, individualized treatment plans and research and evaluation. Treatment activities identified were: patient education, patient-specific treatments, and education or consultation with other health care providers (HCPs). Immediate outcomes included increased patient knowledge and motivation, and increased HCPs knowledge of patient needs and the dietitian role. Intermediate outcomes included patients engaging in healthy eating, attending community programs, receiving more informed care from HCPs, and HCPs referring appropriately to the dietitian and providing appropriate nutrition resources to patients. Ultimate outcomes of our service included: patient stability in hospital, reduced patient readmissions, and safe and cost-effective nutrition support.

Recommendations and conclusions: Development of a PLM provided a communication and team building tool that helped staff to clarify their roles and activities. The PLM also provided a planning and evaluation tool to identify resources required to implement activities needed to achieve desired outcomes.

Abstracts Presented by Dietetic Interns

Note: These abstracts represent research projects of dietetic interns across Canada and were not subject to the DC peer-review process.

1. KR Chalifoux
Capital Health and University of Alberta
Integrated Dietetic Internship Program
Edmonton, Alberta
Proposed Assessment of nutritional status of children on peritoneal dialysis
2. BD Zak
Capital Health Comprehensive
Dietetic Internship
Edmonton, Alberta
St. Albert and Castledown's School Food Assessment Project
3. DE Sharp
Capital Health Dietetic Internship Program
Edmonton, Alberta
Evaluation of Telehealth videoconferencing as a means to deliver Canada Prenatal Nutrition Program (CPNP) information and education to Alberta First Nations and Inuit community health workers
4. L Cuglietta
Capital Health Dietetic Internship Program
Edmonton, Alberta
Familial perceptions and attitudes toward Childhood Obesity
5. AL Hayward, N Romaine
Capital Health Graduate Dietetic
Internship Program
Halifax, Nova Scotia
Determining the postpartum needs of clients for Public Health Services' family health drop-ins
6. BE Rudd
Capital Health Graduate Dietetic
Internship Program
Halifax, Nova Scotia
Improving nutrition risk screening for residents admitted to Capital District Health Authority long term care facilities
7. JL Ambler, D Aldous
Capital Health Graduate
Dietetic Internship Program
Halifax, Nova Scotia
Evaluating the effectiveness of a pilot group cholesterol education program in the QEII Health Sciences Centre Nutrition Education Clinic
8. JN Haskett, M Cipak, J Pryor
Capital Health Graduate Dietetic
Internship Program
Halifax, Nova Scotia
Effectiveness of a social marketing intervention to increase sales of fruits and vegetables in a workplace setting
9. J Srikiisoon, MJ Taylor
Capital Health Graduate Dietetic
Internship Program
Halifax, Nova Scotia
A qualitative analysis of Capital Health Dietetic Internship Program: a preceptor's perspective
10. KY Brown, D MacInnis
Capital Health Graduate Dietetic
Internship Program
Halifax, Nova Scotia
To assess the impact of plate and panning wastage on the average amount of daily bulk food wastage, at the Camp Hill Veterans' Memorial Building within the Capital Health District

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| 11. | SM LeBlond, D Nowlan
Capital Health Graduate Dietetic Internship Program
Halifax, Nova Scotia | The utility worker's perspective on how to retain an employee |
| 12. | SL Murphy, S McBride
Capital Health Graduate Dietetic Internship Program
Halifax, Nova Scotia | Handgrip strength vs. subjective global assessment markers of nutritional status in patients with chronic renal failure |
| 13. | SE Pearson, P Smith
Capital Health Graduate Dietetic Internship Program
Halifax, Nova Scotia | Is dietitian intervention effective in improving clinical outcomes of outpatients on hemodialysis? |
| 14. | ML Coady ¹ , J Ledwidge ²
Capital Health Graduate Dietetic Internship Program ¹ and IWK Health Centre ²
Halifax, Nova Scotia | Correlation between iron status and cognitive development among preterm infants |
| 15. | KA Hancock
Capital Health Regional Dietetic Internship Program
Edmonton, Alberta | Feasibility assessment of implementing nutrient dense food items into the pureed menu at a long term care facility |
| 16. | K Maybank ¹ , M Barron ¹ , L Hagen ¹ , B Reid ² , A. Atkinson ² , E Grunebaum ²
Department of Clinical Dietetics ¹ , Blood and Marrow transplantation and Immunology ² , The Hospital for Sick Children
Toronto, Ontario | Iron deficiency after hematopoietic stem cell transplant for Severe Combined Immune Deficiency (SCID) |
| 17. | R Rosenthal, M Carricato, D Mager
Department(s) of Clinical Dietetics & GI/Hepatology/Nutrition,
The Hospital for Sick Children
Toronto, Ontario | Carnitine status in TPN dependent infants with intestinal failure |
| 18. | J Read
Dietetic Internship Program with a Northern and First Nations Focus
Thunder Bay, Ontario | Exploring the dissemination of Health Canada's statement on vitamin D supplementation for breastfed infants to community peer educators |
| 19. | JD Shutt
Dietetic Internship Program with a Northern and First Nations Focus
Sudbury, Ontario | Evaluating the usefulness and cultural appropriateness of food group fact sheets among First Nations communities in Canada |
| 20. | LA Romas
Dietetic Internship Program with a Northern and First Nations Focus
Thunder Bay, Ontario | Evaluation of the Nutrition Labelling Toolkit by community educators |

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| 21. | LC West
Dietetic Internship Program with a
Northern and First Nations focus
Sudbury, Ontario | Recommendations for formative research to develop
point-of-purchase interventions targeting isolated
northern First Nations and Inuit communities |
| 22. | N Bujold, A Morris
Dr. Georges-L. Dumont Regional Hospital
Moncton, New Brunswick | The relationship between obesity, dietary intake and
physical activity among hospital employees at the
Dr. Georges-L. Dumont Regional Hospital in
Moncton, New Brunswick |
| 23. | Y Asada, S Cameron, M Michaud,
S Peterson, L Wone
Fraser Health Authority Dietetic
Internship Program
New Westminster, British Columbia | Validation and clinical value of the nutrition-screening
tool used at Royal Columbian Hospital to assess
protein energy malnutrition |
| 24. | A Gemmill
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | Food service emergency planning |
| 25. | AG Spittal
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | Bacterial contamination of open enteral feeding systems |
| 26. | AC Hoover
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | The community food system of Repulse Bay:
a needs assessment |
| 27. | BMA Lints
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | The development of an evaluation framework for
primary care nutrition services in ACCESS centres |
| 28. | B Grobb
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | Manitoba dietitians discuss ethical considerations in
weight management |
| 29. | CM Williams
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | Clostridium difficile the “superbug” and the role
of dietitians |
| 30. | D Ambrosi
Manitoba Partnership Dietetic Education
Program
Winnipeg, Manitoba | Evaluation of the services provided by the Manitoba
Home Nutrition Program: a retrospective quality review |

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| 31. | EKD Harasymek
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Cardiovascular disease risk factors – what should we monitor from a population health perspective? |
| 32. | JL Cordeiro
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | An evidence based review for the indication and use of low copper, low iodine, low oxalate and low tyramine diets for the Winnipeg Regional Health Authority diet compendium |
| 33. | K Krueger
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Effective nutrition messages for females regarding vegetable and fruit intake |
| 34. | L Begg
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Functional foods and nutraceuticals and prevention and treatment of hypertension |
| 35. | LG Pestaluky
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Recommendations for effective nutrition education classes: A focus on elderly adult day hospital participants |
| 36. | N DeGagne
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Closed versus open enteral feeding system: a cost effectiveness analysis |
| 37. | L Pedruchny
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | Nutrition education in an alcohol treatment program: What do clients want to learn? |
| 38. | N Gurican
Manitoba Partnership Dietetic Education Program
Winnipeg, Manitoba | The role of the registered dietitian in dysphagia management – the perspective of Manitoban dietitians |
| 39. | S Blunden, C Hector
McGill University
Montreal, Quebec | Attending breastfeeding classes resulted in more mothers breastfeeding and for a longer duration |
| 40. | SR Strulovitch
McGill University
Montreal, Quebec | Effectiveness of homemade laxatives in a long-term care centre |
| 41. | V Lachance
McGill University
Montreal, Quebec | Les produits naturels et la fibromyalgie |

42. C Cicco, A Cuddy, N Gioulos
Mount Sinai Hospital
Toronto, Ontario
Does satisfaction with nutritional counselling services influence weight management in obese patients with Type 2 diabetes at Mount Sinai Hospital?
43. G Siu, V Poulos, JMW Wong, A Langlois
Mount Sinai Hospital Comprehensive
Dietetic Internship Program
Toronto, Ontario
The feasibility of oral creatine monohydrate supplementation in palliative cancer patients
44. M McEachern, T McBride, K Lyon-Benton,
S Unger, K Kotsopoulos
Mount Sinai Hospital Comprehensive
Dietetic Internship Program
Toronto, Ontario
Pumping volumes in the neonatal intensive care unit at Mount Sinai Hospital
45. LJ Burris, E Collins, M Sermer,
JMW Wong
Mount Sinai Hospital Comprehensive
Dietetic Internship Program
Toronto, Ontario
Detailed dietary intervention compared to usual care in nausea and vomiting of pregnancy
46. J Fenster, JL Arcand, JMW Wong,
GE Newton
Mount Sinai Hospital Comprehensive
Dietetic Internship Program
Toronto, Ontario
Assessment of sodium intake in patients with heart failure
47. M Bianco, E Dimou
North York General Hospital
Comprehensive Dietetic Internship Program
Toronto, Ontario
Prevalence of malnutrition risk in out-patients at an acute care hospital chemotherapy clinic: a needs assessment
48. J Balge, J Kitching
North York General Hospital
Comprehensive Dietetic Internship Program
Toronto, Ontario
Effectiveness of the RYG dietary system in the nutritional management of young children with Prader Willi Syndrome
49. N LeBlanc¹, K Wadden²
Ottawa Hospital Internship¹ and The
Children's Hospital of Eastern Ontario²
Ottawa, Ontario
Enhancing consumption of dietary omega-3 fatty acids in pediatric cystic fibrosis patients through diet counseling and nutrition education tools
50. JL Labrecque
Programme d'internat en diététique de
l'Hôpital régional Dr-Georges-L.-Dumont
Moncton, Nouveau-Brunswick
Étude sur le besoin de surveillants en alimentation dans la province du Nouveau-Brunswick
51. J Hachey
Programme d'internat en diététique de
l'Hôpital régional Dr-Georges-L.-Dumont
Moncton, Nouveau-Brunswick
Évaluation des effets de la graine de lin moulue utilisée dans le traitement de la constipation chez les patients recevant des soins prolongés à l'Hôpital régional Dr-Georges-L.-Dumont de Moncton

52. CA Collier, EM Bocskei, L Normen
Providence Health Care Dietetic Internship Program, St Paul's Hospital
Vancouver, British Columbia
Correlation of a dietary screening tool with saturated fat intake in Healthy Heart Lipid Clinic patients at St Paul's Hospital
53. H van Heukelom
Providence Health Care Dietetic Internship Program, St Paul's Hospital
Vancouver, British Columbia
The effect of dietitian-prescribed liquid oral supplements on body mass index in long term care residents
54. N Heroux, M Warken, L Burns
Regina Qu'Appelle Health Region Dietetic Internship Program
Regina, Saskatchewan
A study of ideal body weight assessment methods and the mini nutritional assessment (MNA) tool to determine risk of malnutrition in hospitalized older adults
55. AC Coutts, JI Fenske, LD Skowronski
Regina Qu'Appelle Health Region Dietetic Internship Program
Regina, Saskatchewan
Assessing diabetes self-management of participants of the "Learning to Live With Type 2 Diabetes" Program
56. C Bodnar, A Sjodin
Regina Qu'Appelle Health Region Dietetic Internship Program
Regina, Saskatchewan
Evaluation of protein and energy requirements and stress factors for patients with renal disease, chronic obstructive pulmonary disease and head injuries
57. JL DeRoose, DR D'Ottavio
Regina Qu'Appelle Health Region Dietetic Internship Program
Regina, Saskatchewan
Micronutrient intake of exclusively tube fed clients in long term care
58. W Barabash, L Boden
Saskatoon Health Region Dietetic Internship Program
Saskatoon, Saskatchewan
Health status of children and adolescents born prematurely with low birth weight
59. C Issel
Saskatoon Health Region Dietetic Internship Program
Saskatoon, Saskatchewan
An investigation into the effects of low sulfate water and prebiotic and probiotic-enhanced diet on symptoms of pediatric ulcerative colitis
60. H Reimer, S Whiting
Saskatoon Health Region Dietetic Internship Program
Saskatoon, Saskatchewan
Vitamin D education intervention for independent living seniors
61. K Faasse, L Hilderman, P Lowe
Saskatoon Health Region Professional Practice Dietetic Internship Program
Saskatoon, Saskatchewan
Parenteral nutrition – impact of dietitian consultation

62. C Coburn
Saskatoon Health Region Professional
Practice Dietetic Internship Program
Saskatoon, Saskatchewan
- Sensory evaluation of folate-rich pureed foods
63. ZE Barnett
Southeastern Ontario Comprehensive
Dietetic Internship Program
Kingston, Ontario
- Using television to promote the Healthy Measures concept
64. KA Burchart
Southeastern Ontario Comprehensive
Dietetic Internship Program
Kingston, Ontario
- Do pedometers help adults with type 2 diabetes improve their
glycemic control? A pilot research study
65. KL Taylor
Southeastern Ontario Comprehensive
Dietetic Internship Program
Portland, Ontario
- Fostering a positive feeding experience for parents and toddlers
in North Leeds
66. LD Jones
Southeastern Ontario Comprehensive
Dietetic Internship Program
Kingston, Ontario
- Nutrition Education for a Community Pedometer-Based
Walking Program
67. RJ Robbins
Southeastern Ontario Comprehensive
Dietetic Internship Program
Kingston, Ontario
- Promoting Policy E-26: Creating a healthy school nutrition
environment
68. JJ Reid
Southeastern Ontario Comprehensive
Dietetic Internship Program
Brockville, Ontario
- Diabetes/nutrition education for developmentally disabled
individuals - A pilot research study
69. D Candiotta, N Saxena, C Huang,
P Darling, P McFarland, S Carere
St. Michael's Hospital Dietetic Internship
Program
Toronto, Ontario
- Evaluation of a new phosphorous point system as a teaching
tool for improving dietary adherence and satisfaction in an
outpatient peritoneal dialysis population: a pilot study
70. N Walsh, S Douglas-Hanninen, P Darling,
M Keith
St. Michael's Hospital Dietetic Internship
Program
Toronto, Ontario
- B vitamin deficiency in hospitalized patients with congestive
heart failure

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| 71. | L Sutton, B McVeigh, S Chatvuttinun,
M McCall, P Darling, J Wasserman, S Ng
St. Michael's Hospital Dietetic Internship
Program
Toronto, Ontario | Adequacy of and barriers to enteral feeding in the neurotrauma intensive care unit at St. Michael's Hospital |
| 72. | L Moisey, S Schamehorn, S DeMaio,
P Darling, D Scaffidi, K Gough
St. Michael's Hospital Dietetic Internship
Program
Toronto, Ontario | Can dispensing nutritional supplements at medication pass increase supplement intake and prevent weight decline compared to standard on-tray delivery in HIV and oncology inpatients with disease-associated weight loss? |
| 73. | JP Lane, KJ McAfee
Sunnybrook & Women's College Health
Sciences Centre Dietetic Internship
Program
Toronto, Ontario | A pilot study measuring psychosocial self-efficacy |
| 74. | C McDonald, J Brennan-Donnan,
L Stefanizzi, J Kim
The Hospital for Sick Children
Toronto, Ontario | Triceps skinfold and midarm circumference as indicators of growth in surgical infants in a Neonatal Intensive Care Unit (NICU) |
| 75. | L Moniz, E Assor, J Buccino, K Perlman
The Hospital for Sick Children Internship
Program
Toronto, Ontario | The impact of glycemic index (GI) education on dietary intake of newly diagnosed children with type 1 diabetes three months following diagnosis |
| 76. | P Vilaysane, K Belzile
The Ottawa Hospital Dietetic Internship
Program
Ottawa, Ontario | Does room service increase patient satisfaction on the maternity ward? |
| 77. | J Macéus, M Graham, L Morrin
The Ottawa Hospital Dietetic Internship
Program
Ottawa, Ontario | The Usability of the 2004 University of Ottawa Heart Institute Weight Management Website |
| 78. | K Belzile, F Damji, J Miazga
The Ottawa Hospital Dietetic Internship
Program
Ottawa, Ontario | Point of impact of marketing a branded product in patient food services |
| 79. | J Chamberlain, J Hill
The Ottawa Hospital Dietetic Internship
Program
Ottawa, Ontario | Effects of diabetes counselling on improvement of glycemic control |

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| 80. | H Stiles, M Roet, D Quenneville
The Ottawa Hospital Dietetic Internship Program
Ottawa, Ontario | Examining the prevalence of medical directives for Registered Dietitians in Canada's teaching hospitals |
| 81. | JLE Sills, M LeBlanc, J Chouinard
The Ottawa Hospital Dietetic Internship Program
Ottawa, Ontario | Correlation of body mass index with referral for placement in geriatric day hospital patients |
| 82. | C Evans, D Quenneville
The Ottawa Hospital Dietetic Internship Program
Ottawa, Ontario | Do potassium and phosphate levels improve with monthly education in hemodialysis patients? |
| 83. | AC Aylett ¹ , S Akinsulie ² , K Barry ²
The Ottawa Hospital Dietetic Internship Program ¹ and Weight Management Clinic,
The Ottawa Hospital-Civic Campus ²
Ottawa, Ontario | A cross-sectional project to determine the internal validity of a patient satisfaction questionnaire, developed specifically for the Ottawa Hospital's weight management clinic program |
| 84. | T Fansabedian, M Noel, K Dawdy, M Mori
University Health Network Dietetic Internship Program
Toronto, Ontario | How well do you know your maintenance hemodialysis population? |
| 85. | H Dickinson, M Figliano, K Camelon, L Hoffman, T LaVallee
University Health Network Dietetic Internship Program
Toronto, Ontario | Is change in dietary variety an indicator to recovery from anorexia nervosa: a pilot study? |
| 86. | K Burns, M DeMelo, K Barker, R Agellon, A Offenheim, R Figueroa
University Health Network Dietetic Internship Program
Toronto, Ontario | There must be a better way: measuring the dietary practices of people with type 2 diabetes mellitus |
| 87. | R McBryan
University of Alberta Coordinated Dietetic Internship Program
Calgary, Alberta | Kids' Cooking and Body Image |
| 88. | CE Schneck, AR Dorland
University of Alberta Integrated Dietetic Internship Program
Edmonton, Alberta | Patient nutritional health screen implementation in a palliative home care population |

89. A Lindstrom, C Moreau, J Horvey
University of Saskatchewan
Saskatoon, Saskatchewan
The comparison of a liberalized diet versus a restricted diet
on the perception of food intolerances in ostomy patients
90. P Crozier, J Gallant, J Taylor
UPEI Integrated Dietetic Internship
Program
Charlottetown, Prince Edward Island
Evaluation of a Fruit & Vegetable Pilot Program for Elementary
School Children in Prince Edward Island