

Canadian Foundation for Dietetic Research Dietetic Research Event – June 14, 2013

From the west coast of Canada it is with great pleasure that I welcome you to beautiful Victoria, host city of the 2013 Dietitians of Canada Annual Conference Research Event. This year the Canadian Foundation for Dietetic Research received many high quality abstracts that clearly illustrate diverse interests and issues faced by members in everyday dietetic practice. Through the continued support of Dietitians of Canada and Canadian Foundation for Dietetic Research, the 2013 Research Event has shaped up to be an inspiring forum for strengthening the practice of Canadian dietitians from coast to coast to coast.

The topics showcased in this year's abstracts span a broad scope of practice areas that include Public Health Nutrition, Undergraduate Education and Dietetic Internship, Patient Services, and using Technology in Health Education, to name a few. Moreover, the findings help us to better understand the effects of ethnicity, socioeconomic, gender, and age on health and illness.

New to this year's event, each presenter will provide a 10-minute oral presentation followed by a short question period. This lively format replaces the electronic posters and 20-minute presentations used in the past, and is sure to ignite plenty of enthusiastic discussion! As you listen to and reflect on the issues that your colleagues passionately share, I urge you to consider how you can become more involved in the research and experience-sharing process. Discuss an idea with a presenter you would like to meet or with colleagues you already know. By engaging our curious minds in critical dialogue, together we will continue to strengthen dietetic knowledge and practice in Canada.

A successful Research Event requires dedicated work and commitment from many people. On behalf of Dietitians of Canada and Canadian Foundation for Dietetic Research, I would like to extend a special thank you to the members of the 2013 Abstracts Review Committee who represented community nutrition, private practice, clinical nutrition, food service, and academic areas of expertise and practice and worked collaboratively to ensure an outstanding line-up of research: **Colleen McGuire** (atthetablenutrition.com), **Dani Shahvarani-Renouf** (4elementshealth.wordpress.com), **Dr. Evelyn Cornelissen** (Research, Southern Medical Program, Faculty of Medicine, University of British Columbia), **Gerry Kasten** (Community Nutritionist, Squamish Community Health Centre, Vancouver Coastal Health), **Mahsa Jessri** (PhD Candidate, Faculty of Medicine, University of Toronto), and **Mohsen Saberi** (Food Services Manager, University of British Columbia Hospital). I would also like to express my gratitude to **Dr. Daphne Lordly** (Associate Professor, Mount St. Vincent University), **Dr. Karen Davison** (Instructor, Langara College), and **Theresa Cividin** (Practice Leader, Clinical Nutrition, Vancouver Coastal Health) for graciously moderating research sessions. And finally, a special thank you to **Diana Sheh** at Dietitians of Canada and **Isla Horvath** at Canadian Foundation for Dietetic Research for guiding the Committee through the inaugural use of an online abstract review system and in scheduling the research presentations.

I look forward to seeing you at the Research Event on June 14th to celebrate an impressive selection of dietetic research that is happening in Canada from resplendent coast to coast to coast.

Dr. Gail Hammond
Chair, 2013 Abstracts Review Committee
The University of British Columbia

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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

ORAL RESEARCH PRESENTATION ABSTRACTS

FRIDAY JUNE 14 , 2013

Community-based Nutrition Education

Front-of-pack sugar claims: Health professionals' understanding compared to marketplace practice

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Front-of-pack (FOP) claims are meant to help consumers make informed dietary choices. However, consumer expectations of FOP sugar claims may not be met. Since all carbohydrates (including naturally occurring and added sugars) contribute 4kcal/g, comparative reductions in calories and carbohydrates are required for any meaningful changes regarding health. **Objectives:** 1) to assess health professionals' understanding of FOP sugar claims ("reduced in sugar", "no sugar added", "unsweetened"); 2) to compare calories, carbohydrates and sugars content between claim and reference products in the marketplace; and 3) to determine the level of compliance with Canadian regulations. **Methods:** In 2012, four Toronto grocery stores were surveyed to identify products with FOP sugar claims. Health professionals completed questionnaires at two National conferences to assess their understanding of sugar claims. **Results:** Questionnaire respondents (n=442) were primarily dietitians. The majority of respondents expected calories to be reduced by 25% for "reduced in sugar" and "no sugar added" products. More than half incorrectly thought concentrated fruit juice could be added to "no sugar added" products. In the marketplace, of the 402 products that bore a sugar claim, one-third were not reduced in calories by $\geq 25\%$ as expected by health professionals; 15% of products were higher in calories, 18% higher in carbohydrates, and 6% higher in sugars compared to reference products. One-third of products did not meet the % reduction claimed on the package. Less than 40% of products complied with regulations; mainly due to the absence of a reference product or the incorrect use of concentrated fruit juice as a sweetener in "no sugar added" products. **Implications/Conclusions:** Sugar claims may be misleading if used incorrectly or if there is not a meaningful reduction in calories. The perception that these products are free of sugars and/or lower in carbohydrates may be of concern for people with diabetes.

Food choices, dieting behaviours and food product attitudes of baby boomer and older women in Manitoba

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Objectives: To explore middle-aged and older women's food-related attitudes and behaviours. Using a mixed-methods approach, we examined food choice influences, barriers to healthy eating, dieting behaviours and experiences, and attitudes towards specific food products (local, organic, functional, diet). **Methods:** Surveys and focus groups were used to collect data from baby boomer (aged 46-65) and older (aged 66-85) women living in rural and urban Manitoba (n=137). **Results:** Many factors influenced women's food choices, but taste and nutrition were particularly important. Most women were interested in making healthy food choices; however, several key barriers interfered with healthy eating and weight loss goals (e.g., family preferences, time, temptations/emotional eating, living alone). Dieting and dietary restraint were common among women. Fifty-three percent of women reported dieting within the past year, with 21% participating in a formal weight loss/diet program. Desire to lose weight was a common sentiment, yet many women had experienced prior unsuccessful and frustrating dieting attempts and/or felt they did not have the time/motivation to make dietary changes. Overall, women supported local eating and made it a priority to choose locally-produced products whenever possible. Organic foods were not viewed as positively, with cost being a major barrier to consumption. Functional food usage was not common, as many women were sceptical of product claims. Attitudes towards and usage of 'diet' products were varied, but poor taste was seen as a deterring feature. **Implications & Conclusions:** Dietitians should be made aware of healthy eating barriers as well as dieting behaviours/experiences among women in order to provide effective and empathetic nutrition counselling that promotes healthy eating while minimizing body image issues and harmful dieting. Given that baby boomer women are a lucrative consumer group, food producers should be aware of their food choice influences and product attitudes to develop and implement appropriate marketing strategies.

Perceptions and use of milk products among Chinese, East Indian and Middle Eastern Canadians—a survey study

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Context: The most recent national survey of Canadian eating habits (CCHS 2006) indicated that milk products were under-consumed by the majority of individuals. More than 20% of Canada's population is composed of immigrants and this percentage is continuously increasing. With a growing body of evidence linking dairy consumption to several health benefits, arose a need to assess the perceptions and inclusion of milk products among certain ethnic groups. **Objective:** To examine the perceptions and use of milk products among Canadian ethnic groups. **Methods:** A telephone survey study was undertaken in May 2008, targeting individuals of Chinese, East Indian and Middle Eastern descent, living in Toronto, Montreal and Vancouver areas. Interviewers inquired about general eating habits, as well as perceptions and use of milk products. Results were compared with the General population. **Results:** A total of 1,256 individuals (n=655 Ethnic and n=601 General population) participated in the study. The majority (82-90%) of ethnic group respondents are inclined to recognize the benefits of milk products. For almost all (92-97%) Indian and Middle Eastern respondents, dairy has always been part of their diet. The majority of Chinese Canadians (72%) have also always included dairy in their diet. Additionally, 35-40% of the ethnic consumers studied report consuming dairy products more frequently versus a year ago, compared to 28% of the General population. **Conclusions and Implications:** Contrary to popular belief, dairy is not new to the diet of representatives of Chinese, East Indian and Middle Eastern groups. Furthermore, they appear to recognize the benefits associated with dairy therefore this may present a good approach to

help facilitate education efforts to increase dairy consumption in these groups.

An evaluation of sodium and salt messages in Canadian newspapers

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Objectives: Print media is a major source of nutrition information for Canadians and is a method for monitoring consumer messages. In July, 2010 the Sodium Reduction Strategy for Canada - Recommendations of the Sodium Working Group was published on behalf of the Health Canada led Sodium Working Group steering committee. The objective of this research was to examine the quantity, types, accuracy, and tone of newspaper messages related to sodium and salt in the year following the publication of the Sodium Strategy Report. **Methods:** Six of the highest circulating nationwide English and French language Canadian newspapers (Toronto Star, Globe and Mail, Journal de Montreal, La Presse, The Gazette and Toronto Sun) were analyzed for nutrition messages relating to sodium and/or salt. Newspaper content published between July 1, 2010 and August 31, 2011 were coded. This included all publications from the newspapers for each month, including weekend publications, when applicable. Articles were searched online via the media monitoring service Health Canada Newslink using three key words: salt, sodium, and sel. Deductive content analysis was conducted using pre-established criteria (ie: topic/nutrient, message format, etc). **Results:** Nine-hundred and one total messages were coded in the 6 newspapers with 519 (57.6%) related to sodium and 358 (39.7%) related to salt, with 24 (2.7%) messages covering both topics. Articles, columns, headlines, letters to the editor and editorials addressed these topics in both the English and French media. Findings showed that the majority of the messages were accurate and written with primarily neutral or negative tones. **Implications & Conclusions:** In the year following the release of the Sodium Reduction Strategy, there was considerable coverage of sodium and salt stories within Canadian newspapers. This research demonstrated that an evaluation of media messages can provide a perspective of the social environment after new policy has been initiated.

Perceptions of four front of package systems among users and non-users of the nutrition facts table

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Objective: Nutrition labelling is an important policy tool that provides consumers with information in making healthy food choices. In addition to the Nutrition Facts table, other front of package (FOP) systems or symbols have been evident on food packages. However, how consumers perceive these systems is lacking. The purpose of the qualitative research with Canadian consumers was to determine their perceptions of the healthiness of foods based on four FOP labelling concepts. **Method:** Two online bulletin boards were conducted with principle household grocery shoppers between May 4th and May 6th, 2011. One group of 20 people were users of the Nutrition Facts table (NFT) for nutrient information and the second group of 16 people identified themselves as non-users. The four FOP labelling systems included two nutrient specific systems—the Traffic Light (TL) and the Guideline Daily Amount (GDA)—and two summary indicator systems—NuVal and My-5. **Results:** Both summary indicator systems were viewed as too simplistic and confusing. Comments included “how were the single numbers determined?” and “does a high or low number mean healthier?”. The initial reaction to both the TL and the GDA was positive in that they both provided information on key nutrients. However, many thought the information was redundant given the presence of a NFT. Depending on the FOP system viewed, perceptions on healthiness varied even for the same food product. **Implications & Conclusion:** Those who use the NFT would prefer to continue using this source of nutrition information. For those who do not use the NFT,

although they indicated that the presence of FOP systems may influence their purchase decision, the main reason for food selection is taste and preference for the product rather than nutritional content.

Infant feeding practices from birth to 6 months of mothers who initiated breastfeeding in the Regina Qu'Appelle Health Region

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Objectives: To determine how closely infant feeding practices in Regina Qu'Appelle Health Region align with national recommendations and what factors influence current practices. **Methods:** The sample included 178 mothers of term infants 6 to < 12 months of age who completed a survey about their infant feeding practices between January and June 2012. **Results:** The majority of mothers were at least 26 years old, had completed post secondary education, were employed or on maternity leave with household incomes of at least \$80,000. About one third lived in rural areas surrounding Regina. The proportion of infants, who were breastfed only, was 83% during birth to hospital discharge, 56.6 % at 4 months, dropping further to 11.2% at 6 months. Over 40% of mothers indicated that they had major problems or issues breastfeeding. There was no significant effect, however, of maternal age, education, income or where they lived on whether they experienced problems breastfeeding. A significant but weak relationship ($P < .05$, $\phi = .15$) was found with primiparity; more first time mothers indicated problems breastfeeding than those with previous births. Around 13.0% of mothers in this sample began introducing solids at 4 months. This increased to 35.6% at 5 months and 46.3% at 6 months. Mothers who were breastfeeding only were significantly ($P < .001$; Cramer's $V = .63$) more likely to supplement with vitamin D (95%) than those who were no longer breastfeeding (vitamin D supplementation rate 29%). **Conclusions and Implications:** The results indicate that even in relatively well-educated and higher income households current infant feeding practices, especially as they pertain to breastfeeding, fall short of national guidelines. The study offers insights as to where more attention is needed to support mothers in their efforts to enhance healthy infant feeding outcomes.

Cooking workshop experiences of adults participating in the PREPARE prediabetes lifestyle intervention program

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The Prediabetes Research and Education Promoting Activity & Responsible Eating (PREPARE) program provides community-based, healthy lifestyle education for individuals with prediabetes. **Objective:** To evaluate the acceptability of the PREPARE optional cooking workshops (CW) by adults with prediabetes. **Methods:** Adult participants (≥ 30 years) diagnosed with prediabetes were referred by their physician to the Diabetes Education Centre of St. Joseph's Health Care London, Ontario. Participants in the 6-month PREPARE program were offered optional monthly CW that taught cooking skills and promoted the consumption of fruits and vegetables. Feedback on the CW experience of participants was collected after each CW via a questionnaire. **Results:** Between 2011 and 2012, 46 participants (39% of total PREPARE participants) attended at least one CW and completed the feedback questionnaire. Most participants (78%, $n=36$) strongly agreed that they enjoyed the CW. Seventy-four percent ($n=34$) of those who attended strongly agreed that they would be willing to try at home healthy recipes provided. Sixty-seven percent ($n=31$) of CW participants strongly agreed that they learned new ways to cook vegetables. What

participants liked the most about the CW was trying different foods, learning to prepare new foods, and interacting with the dietitian and students. **Implications & Conclusions:** The majority of PREPARE CW participants enjoyed the experience and reported willingness to try at home the healthy recipes provided. Based on these results, the CW have potential to be used as part of a prediabetes education program in encouraging participants to incorporate more vegetables and fruit in their diet. Funding provided by The Lawson Foundation.

Promoting healthy weights for children & teens - A comprehensive and collaborative approach to developing consumer messages & resources

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Purpose: The focus of this initiative was to develop a series of evidence-based motivational messages for parents and teens (ages 14 to 17), regarding the promotion of healthy weights. The process used was comprehensive and collaborative and can inform the development of other health education messaging. **Process or Content:** The BC Ministry of Health established a multidisciplinary Advisory Committee to provide strategic direction. Dietitians of Canada appointed a project manager to oversee the initiative, recruited a nutrition communications contractor to develop evidence-based messages and engaged a qualitative research firm to focus test the messages and fact sheets. The final messages were submitted to Practice-based Evidence in Nutrition (PEN) www.pennutrition.com for approval. PEN approval on the fact sheets indicates that the key and supporting messages are under-pinned by supporting evidence from the recent literature and best practice approaches. **Project Summary:** Dietitians of Canada, the BC Ministry of Health and the Provincial Health Services Agency collaborated in the development and dissemination of healthy weight messaging. Resulting messages and tips have been developed into customizable fact sheets and made available to educators through an innovative web-based tool <http://bcfsg.dietitians.ca/>. **Recommendations & Conclusions:** This initiative demonstrates the important role of consumer focus testing as a best practice approach to developing nutrition messages. The focus testing gave insights on how to frame messages so they inspire parents and teenagers to make positive changes in their family and individual practices. An Advisory Committee is an important element in the message development process. The multidisciplinary nature of the Committee ensured that the messages are supported by the current evidence and written in plain language appropriate for a range of socio-economic and educational backgrounds. As a result of this comprehensive process, health educators can feel confident that these fact sheets are reflective of the target audiences' needs.

Risque et représentations sociales du diabète chez les francophones âgés de 50 ans et plus au Nouveau-Brunswick

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Objectifs; Déterminer le risque de diabète et les représentations sociales du diabète chez les francophones âgés de 50 ans et plus au Nouveau-Brunswick. **Méthodes;** Cent-vingt francophones non diabétiques âgés de 50 ans et plus de la région du grand Moncton au Nouveau-Brunswick ont été étudiés. **Les représentations sociales du diabète** ont été cernées lors de discussions de groupe [20 min - 45 min] composés de 8 à 10 personnes. Les discussions ont été enregistrées sur un magnétophone audio. **Mesures anthropométriques.** Le poids, la taille et le tour de taille ont été mesurés selon les normes établies. L'indice de masse corporelle (IMC) a été calculé et exprimé en kg/m². **Dépistage du risque du diabète.** Un outil de dépistage valide, a été utilisé. Des analyses qualitatives et quantitatives ont été réalisées à l'aide des logiciels *Atlas.ti* et *SPSS* respectivement. **Résultats;** Des résultats préliminaires démontrent que les participants souffrent de maladies cardiovasculaires (27,5%); d'hypertension artérielle (38%) et d'ostéoporose (17%). Plus de 25% des sujets étaient à risque de diabète et 2,5% était à risque élevé. L'analyse des représentations sociales

révèlent que les participants connaissent la définition et les conséquences du diabète. Ils sont conscients qu'il existe différents types mais sont incapables de faire la distinction. Les facteurs de risque ont été moins bien identifiés. Les résultats finaux sur 120 sujets seront présentés lors de la conférence.

Implications & Conclusions ; Les résultats permettront d'élaborer un plan de prévention du diabète facilitant ainsi le travail de diététistes et la prise en charge de la santé chez les aînés.

Using self-administered nutrition and physical activity assessment tools in a prediabetes class

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Objectives: The primary objective was to collect baseline nutrition and physical activity data prior to participants attending a prediabetes class offered by a local health region. The secondary objective was to increase participant self-awareness of nutrition and physical activity behaviors (to encourage goal-setting in these areas). **Methods:** Approximately 1,250 participants attending a two-hour prediabetes education class in Edmonton, Alberta completed a self-administered assessment of their nutritional intake and physical activity. Using the Food Behaviour Checklist and the Godin Leisure-time Exercise Questionnaire, participants rated their fruit, vegetable and fibre intake; milk and soy drink intake; fat intake; diet quality, and; leisure-time physical activity. Linear regression models were performed to identify significant associations between the subscales and demographic characteristics including age, gender, body mass index, food security, and leisure-time physical activity minutes. **Results:** Approximately 75.2% of participants were not meeting minimum fruit and vegetable intakes while 72.5% reported choosing whole grains regularly. Only 28.8% reported regularly consuming milk or soy products. For fat intake, 96.5% reported not eating too much unhealthy fat. For diet quality 81.4% rated their diet quality as poor to good and only 2.2% reported diet quality as excellent. Physical activity levels were lower than the general population as 75.2% of participants reported not meeting current physical activity guidelines of 150 minutes per week. Several significant relationships with demographics variables were identified for fruit and vegetable intake, fat intake, diet quality and physical activity. **Implications and conclusions:** Baseline evaluation of the individuals with prediabetes attending the class identified areas for both personal and class improvement and identified key messages for Registered Dietitians to discuss when providing prediabetes education in this population. Using tools to evaluate the prevalence of such health behaviors benefits both program delivery and development and facilitates future evaluation of the effectiveness of program delivery.

Dietetic Practice and Education

Dietetic scope of practice

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Objectives: A scope of practice is typically defined as the boundaries of a profession. Saskatchewan is one of two dietetic regulatory bodies in Canada without a scope of practice in legislation. The purpose of this study was to explore the concept of scope of practice for dietetics in Saskatchewan and Canada. **Methods:** Using interpretative description methodology, data was collected on scope of practice through four phases. In Phase I, eight provincial dietetic regulatory bodies participated in semi structured telephone interviews. Phase II used an online survey with 92 Saskatchewan dietitians. In Phase III ten Saskatchewan dietitians participated an online focus group. Discussion occurred over a three week period. Phase IV consisted of a document analysis of dietetic scope of practice statements found across Canada. Data analysis, interpretation and reporting were completed using accepted qualitative methods. **Results:** There is considerable variation in the specificity and depth of current dietetic scope of practice statements in Canada. Participants in all phases believed a scope of practice should provide

guidance to dietitians, employers, health professionals, the public, regulatory bodies, and other stakeholders. Challenges defining, understanding and working with a scope of practice include encompassing the diversity of dietetics in a concise statement, and working with stakeholders who have a limited understanding of the dietetic profession. Without a scope of practice, Saskatchewan dietitian participants were interpreting their role from a combination of documents and stakeholders. **Implications & Conclusions:** The nature of provincial health care makes it unrealistic to expect similar dietetic scope of practice statements across all provinces. Many stakeholders, policies and individual circumstances, regardless of whether a legislated scope of practice is in place, influence the role of a dietitian. Dietetic regulators should continue to provide guidance to their members and stakeholders on how to use a scope of practice.

Attitudes and practices regarding milk products among Canadian dietitians

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Context: A growing body of scientific evidence indicates that milk products are associated with several benefits including a healthy weight and reduction in risk for several conditions such as hypertension, type 2 diabetes, cardiovascular disease and colon cancer. However, the majority of individuals fail to consume the recommended servings of milk products per day according to the most recent national data.

Objectives: To determine attitudes and practices among Canadian dietitians regarding milk products.

Methods: A survey was mailed to a random sample of 1,525 dietitians across Canada in September 2010. A total of 299 responded, distributed regionally as follows: 34 from British Columbia, 42 from Prairies, 88 from Ontario, 106 from Quebec, 29 from Maritimes. **Results:** A large proportion of RDs limit or ban milk products for conditions for which milk products may be beneficial including:

Overweight/Obesity (37%); Type 2 Diabetes (33%); Hypertension (20%). Moreover, 73% of RDs limit or ban milk products in those with lactose intolerance which goes against the latest recommendations.

Conditions where dietitians would be inclined to recommend an increase in milk product intake are: Osteoporosis (84%), Pregnancy (65%), Underweight (63%), Lactation (62%), Elderly (60%), and Athletes (51%). **Conclusions and Implications:** A significant proportion of dietitians are inclined to limit milk products for conditions in which adequate or higher milk product consumption may be beneficial.

Continuing education efforts may be needed regarding the role of milk products in health and prevention of disease.

Dietitian's perspectives of interventions enhancing adherence to dietary advice for preventing and managing chronic diseases in adults: a Delphi study

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Adoption of a healthy diet has been identified as the cornerstone for preventing and managing several chronic diseases. However, adherence to dietary advice is suboptimal, thus potentially hampering the effectiveness of dietary interventions. **Objectives:** The purpose of this study was to conduct a Delphi study to assess dietitians' perspectives on the importance and applicability of interventions enhancing adherence to dietary advice for preventing and managing chronic diseases in adults in the Canadian

context. **Methods:** By conducting a Cochrane systematic review, we identified eight promising interventions for enhancing adherence to dietary advice: telephone follow-up, feedback based on self-monitoring, portion sizes, exchange lists, individualized menu suggestions, behavioural contract, watching a video, and multiple interventions. Expert dietitians were recruited to participate through an invitation email sent to various chronic diseases-related networks from Dietitians of Canada. They were invited to participate by completing an electronic questionnaire asking them to rate the importance and applicability on a seven-point Likert scale of each of these eight specific interventions in their practice. **Results:** Among the 32 dietitians who completed the three-round Delphi study, four interventions showed a strong consensus using a $\geq 75\%$ level of agreement. Among those, feedback based on self-monitoring (6.97 ± 0.18 and 6.72 ± 0.46 ; means \pm SD for importance and applicability respectively), portion sizes (6.69 ± 0.54 and 6.75 ± 0.51), and multiple interventions (6.94 ± 0.25 and 6.81 ± 0.40) were found important and applicable, while video (4.75 ± 0.67 and 4.84 ± 0.72) was found neither important nor unimportant and neither applicable nor unapplicable. **Implications and Conclusions:** These findings could guide the development of educational training sessions for dietitians to help them provide interventions that are likely to be adhered to by their patients but also that are applicable to their practice. Further studies should validate these findings with patients to assess whether these interventions are also relevant to their reality.

Trick or Treat: The challenges of balancing roles of mother and dietitian

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To date, there is a variety of literature that discusses children's eating behaviours. Maternal influence emerges as having the most significant impact on these behaviours. Confounding this, dietitian mothers assume the dual role of the nutrition professional and mother. According to the theory of symbolic interactionism, the meanings that these professionals give to their roles will influence their parental practices surrounding food and eating. **Objective:** To explore the meanings that dietitians associate with their roles of mother and dietitian and how meanings translate into parental practices surrounding food and eating. **Methods:** A qualitative research design known as Interpretative Phenomenological Analysis was utilized. Three dietitians were recruited from the faculty of a university nutrition department. They participated in individual, semi-structured interviews that were voice-recorded and transcribed. Data were thematically organized. **Results:** The participants' role of dietitian strongly influenced their perception of being a good mother; beliefs about best practice in raising children around food corresponded with the recommendations of the dietetic profession. As the dietitians navigated motherhood, there was tension caused by their dual role, which they often resolved by adapting their practices to reach a compromise; for example, one mother allowed her children to collect candy on Halloween, even though it went against her principles of good nutrition. Tension also occurred when other family members had different views about food and eating than the dietitian, and when the children disagreed with the choices that their mother made for them towards food. The issues of worrying about their children's nutritional health, as well as trying not to focus too much on food were indicated as well. **Implications & Conclusions:** The meanings surrounding being a dietitian and a mother are very complex. Challenges arise when balancing the roles of mother and dietitian. This research will provide partial groundwork for further study.

Tracking the origins of the terms clear fluid, full fluid, and soft or light diets

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Objectives: The objective of this project was to continue a timeline on the origins and use of clear fluids (CF), full fluids (FF), and light or soft diets from 1840 to 2012 (adding to a pre-existing 1641 to 1840 timeline) to trace the change from humour-based to nutritional science-based feeding practices.

Methods: We studied dietetics and medical reference books from 1840 to 2012, and placed findings into a timeline of approaches to feeding the sick. In addition, we recorded terms that seemed to have shifted

in meaning such as *digestion, nourishment, inflammation, putrefaction, roughage, wholesome, and low residue*. **Results:** Diet manuals did not exist prior to the 1950s; instead, dietitians compiled and shared notes about dietary modifications for various conditions. Diet manuals evolved from individual hospital resources in the 1950s and 1960s, to citywide, then to provincial efforts in the 1990s (prior to the launch of an online national collaboration in 2005). Books on hospital diets used before 1940 contained recipes for 'liquid diets'; these were not categorized as CF or FF. A 1922 self-published collection of practices from many institutions contained *low, medium* and *full* fluid entries; these terms referred to the relative nutritive value of the collections of fluids given and not to the nature of the fluids. 'Soft' referred to semi-solid foods. The earliest mention of CFs was in 1950s notes from individuals/institutions. Entries from 1900 to 1930 were a cataloguing of physicians' pet practices and/or vague ideas about feeding based on longstanding humour-based medicine traditions that were framed with scientific explanations yet not based on any evidence of efficacy. **Implications & Conclusions:** We tracked the evolution of the terminology and rationale for liquid and soft diets. Findings support the use of feeding practices that optimize nutritional status rather than those based on tradition.

Implementing steps in the nutrition care process at Vancouver Acute sites in Vancouver Coastal Health

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Purpose: In Spring 2009 we introduced the Nutrition Care Process (NCP) developed by ADA at three sites of Vancouver Coastal Health: Vancouver General Hospital, UBC Hospital, and GF Strong Rehabilitation Centre. **Process or Content:** A workshop introducing the NCP including use of standardized terminology in Nutrition Diagnosis was held in April 2009. The pocket guides for International Dietetics and Nutrition Terminology (IDNT) were provided as a resource. Other resources provided were case scenarios, sample Nutrition Diagnosis statements, a laminated tool, and online tutorials. An initial chart audit in June 2009 showed less than 50% of dietitians were documenting Nutrition Diagnoses. Subsequent chart audits in summer 2010 revealed 70% of new assessments contained complete nutrition diagnosis statements. This increased to 90% by summer 2011 after all of the nutrition assessment forms were revised to include a Nutrition Diagnosis section. The higher rate of completed Nutrition Diagnoses was related to the revised nutrition assessment forms and increased dietitian confidence and comfort. After consultation with other health authorities across Canada we implemented the Nutrition Intervention and Monitoring and Evaluation steps. In December 2012, the nutrition assessment forms were further revised and reorganized to include the main IDNT categories of these steps. Initial feedback has been positive and dietitians have found it easy to use the Nutrition Intervention and Monitoring and Evaluation sections of the new forms. **Project Summary:** Implementing the NCP in a step-wise manner has been manageable. Dietitians are familiar with the IDNT and have increased comfort in writing nutrition diagnoses and categorizing interventions and, monitoring/evaluation. Providing a regular forum to share and discuss issues and revising assessment forms has supported dietitians in using the NCP. **Recommendations & Conclusions:** We plan to complete additional chart audits and make further revisions to assessment forms when we implement the Nutrition Assessment step.

Disseminating the Canadian Diabetes Association 2013 Clinical Practice Guidelines: A Step-by-Step Approach

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Purpose: The Canadian Diabetes Association 2013 Clinical Practice Guidelines is a rigorously developed knowledge tool that comprehensively addresses all aspects of diabetes care. Despite the availability of these high-quality guidelines, evidence-to-practice gaps are well-documented. Our purpose

was to successfully disseminate the guidelines nationwide and implement these recommendations into clinical care in order to improve quality of diabetes care. **Process or Content:** We used the Knowledge to Action (KTA) framework to build our dissemination strategy. In this framework, knowledge is created, refined then applied through 6 iterative steps: 1) identifying the problem and selecting knowledge; 2) adapting knowledge to local context; 3) assessing barriers to knowledge use; 4) selecting tailoring and implementing interventions; 5) monitoring knowledge use; 6) evaluating outcomes; and 7) sustaining knowledge use. **Project Summary:** We convened a Committee consisting of family physicians, nurses, dietitians, pharmacists, kinesiologists and endocrinologists with provincial/territorial representation, and developed networks with professional, governmental and non-governmental organizations. Based on a literature review and a national survey, we selected 5 key areas of focus: screening/diagnosis, glucose-lowering, vascular protection, team care/organization of care, self-management, and individualization (step 1). Similarly, we identified barriers to guideline uptake and preferred and effective strategies for dissemination (step 2, 3, 4). As a result, our patient- and provider-directed strategy aims to not only provide knowledge, but to promote team-based care and self-management, centred around the individual. Specifically, it consists of an electronic, hard copy and point of care tools (eg interactive care algorithms, flowsheets, reference guide, communication logs, patient reports and resources, EMR templates, laboratory prompts) as well as a communications campaign.

Recommendations/Conclusions: For guidelines to have an impact on patient care, they must be effectively communicated and integrated into clinical care. The KTA framework, which necessitates stakeholder engagement and iterative design, provides a systematic approach to attaining this goal.

Pyridoxine deficiency and homocysteine: their effects on liver lipids

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Objectives: (1) To determine if moderate pyridoxine (B6, PN) deficiency was achieved, (2) To ascertain if there were deregulations in lipid metabolism through total liver fat determination, (3) To identify lipid droplets in hepatocytes if present, and (4) To measure total liver lipid content. **Methods:** Twelve male weanling Sprague Dawley rats were fed AIN-93G basal diet with only vitamin B-6 content modified, given *ad libitum* until termination at day 35. Rats were randomized to one of three dietary groups, n=4, and received 7 mg, 0.7 mg, or 0.07 mg PN-HCl/kg diet. Venous blood and tissues were collected to detect B6 in plasma and urine, plasma total homocysteine and cysteine, lipid determination and visualization via staining 5 µm hepatic sections embedded in optimal temperature cutting medium in Oil red O and hematoxylin. **Results:** Low dietary B6 had a negative effect on tissue weights, feed intake, daily gain and all plasma B6 concentrations, indicating B6 deficiency was reached. Moderate and severe B6 deficiency increased hepatic lipids significantly compared to controls, but did not differ significantly between each other. Increased plasma homocysteine had a very strong relationship with increased hepatic lipid size, which was only found to be significant in severely deficient groups. **Implications & Conclusions:** Due to small sample size, more investigation into the relationship between pyridoxine, homocysteine and hepatosteatosis is warranted. B6 depletion hinders macronutrient metabolism and energy yielding pathways where the vitamin is required. Moderate B6 deficiency is observed in multiple chronic disease states, and hepatosteatosis, can progress irreversibly to non-alcoholic steatohepatitis (NASH). Providing evidence of a non-invasive plasma biomarker for hepatosteatosis can serve as a preventative measure to decrease further progression to NASH. The detection of hepatosteatosis may indicate increased pyridoxine intake in at-risk groups to prevent additional chronic diseases.

Education, Training and Counselling

Bridging the gap for internationally educated dietitians: Development of a sustainable program

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Internationally educated dietitians (IED) immigrating to Atlantic Canada (AC) seek professional licensure and employment. Acculturation and the acquisition of Canadian based dietetic practical experience can be a challenge. **Purpose:** The purpose of this project is to develop a sustainable education framework that offers participants the opportunity to gain required competencies and practical Canadian experience. **Process:** A team consisting of a representative from a university dietetics program, a university international education center and the provincial dietetic regulatory body was formed to guide the process. Best practices in bridging were investigated, an advisory committee established drawn from key stakeholders through AC and beyond, and a preliminary framework and communication strategy were developed. **Project Summary:** Focus groups with international students and practicing dietitians were conducted to discuss program needs. Presentations detailing the project and recruiting potential practicum champions were given. The advisory committee provided input and reviewed materials. Various program activities were accomplished: language requirements established, collaboration with other AC regulatory bodies and community agencies undertaken, an orientation plan, mentoring manual and web page constructed. Two key pilot program modules were developed and delivered over two semesters to three IED's and several international students attending the university hosting the program. Modules integrated concepts related to Canadian dietetic and health practice and cultural competence using face-to-face instruction or through a virtual platform with support from a course instructor. Participant feedback was positive. **Recommendations & Conclusions:** Wide collaboration before, during and after program implementation is important. Current numbers of IED's necessitates a program that serves a wider audience to remain sustainable. The inclusion of international students who also experience acculturation challenges is beneficial. Offering modules via distance increases accessibility to those IED's settling outside the host catchment area. Future work will include program evaluation and development of a pre practicum assessment.

Enhancing Counselling Skills for Dietitians: The implementation of a six session skills- based Motivational Interviewing workshop at University Health Network (UHN)

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Purpose: There is a growing body of research that suggests that Motivational Interviewing (MI) used in combination with nutrition education is efficacious for facilitating diet modification (VanWormer J.& Boucher J., 2004). The increase of evidence to support MI, coupled with the emergence of the behavioural domain as a nutrition diagnosis in the implementation of International Dietetics & Nutrition Terminology (Academy of Nutrition and Dietetics, 2013), has led UHN dietitians to identify the need to expand their current skill set and incorporate more counselling techniques. Some UHN dietitians have taken MI courses to expand their knowledge on behaviour change strategies, and identified a need for on-going support in the implementation of these new skills. **Process:** A needs assessment was conducted on UHN dietitians to assess previous training in counselling techniques. Results indicated that the majority of dietitians had some introductory training in MI. In order to build on current knowledge, a series of six MI workshops were developed and facilitated by UHN dietitians working in Eating Disorders. These dietitians had graduate training in counselling and consistently utilized these skills in daily practice. **Project Summary:** The workshop participants included 14 UHN dietitians working in various clinical areas. The monthly workshops were ninety minutes in length. The format included a check-in to explore between session homework and skill implementation, didactic learning and role-playing with peer feedback. Between session support by the facilitators was offered for dietitians during the implementation phase. **Recommendations & Conclusions:** There is a growing interest in the dietetic community to expand scope of practice with advanced counselling skills. The evidence suggests that MI skills are an effective way to support clients in behaviour change (Ruback et al, 2005). Ongoing support is needed to assist dietitians as they enhance their self-efficacy in the development and implementation of motivational

interviewing.

The Organizational Framework for Exploring Nutrition Narratives (OFFENN) as a resource to prepare dietetics students and interns for client-centred nutrition counselling

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Purpose: The Organizational Framework for Exploring Nutrition Narratives (OFFENN) is a client-centred and dietetic-specific approach to counselling. It is an alternative to behaviour change models and frameworks based on logico-rational and prescriptive views that acquiring food and nutrition knowledge can or will affect eating behaviours. Recognizing the importance of client-centeredness in dietetic practice, we evaluated the effectiveness of the OFFENN as a tool to train dietitians in nutrition counselling. **Process or Content:** Twelve dietetics students and interns voluntarily participated in a two-day intensive counselling skill training workshop based on the OFFENN. Interviews were conducted after training to assess: 1) participant's perception of the value of the workshop; 2) participants' comparative counselling experiences prior and post training; 3) participants' perceived efficacy of the OFFENN as a client-centred approach to nutrition counselling practice. **Project Summary:** Participants indicated that the OFFENN-based counselling skill training workshop was a valuable experience. They reported gaining increased confidence in their counselling skills, and in their abilities to establish rapport with clients. They also recognized that this approach can benefit all dietitians and dietetic interns interested in enhancing their nutrition counselling competencies. **Recommendations & Conclusions:** The OFFENN has the potential to guide practitioners in inviting and interpreting clients' nutritional narratives, and is readily understood and applicable in counselling practice. We recommend the framework as a tool to enhance skill development of future and current dietitians in client-centred nutrition counselling.

Food Security & Nutritional Needs of Vulnerable Groups

'Nourishing Potential': An innovative approach to funding community food action

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Purpose: To develop a sustainable funding model that will, in perpetuity, support community-based action on food security and healthy eating for children and youth in the City of Winnipeg. **Process or Content:** Based on stakeholder meetings with a wide range of community organizations, The Winnipeg Foundation established an Endowment Fund, with a goal of \$5m over five years, to support healthy child development so that all children and youth can reach their full potential to grow and learn. Lead government and corporate donors were identified and various fundraising strategies implemented. Approximately \$1m in grants will be distributed over five years while the capital fund is developed..

Project Summary: A community advisory committee was established to review and advise on grant applications. Programs must include food and nutrition education components and must involve children or youth. Initially, 12 community organizations were invited to apply for grants in a 'pilot' round to test disbursement model. After refinement, a regular biannual grant application cycle was set up. To date, 4 funding cycles have occurred, and a total of \$362,796 has been awarded to 56 projects. Examples include building a garden and supporting a cooking club, augmenting donated food with fresh fruits and veggies, and providing newcomer youth with food. **Recommendations & Conclusions:** An Endowment Fund works by establishing a capital fund that generates sufficient interest to provide on-going grants without depleting capital. In the 2+ years of its existence the Nourishing Potential fund has grown to \$1,890,667. Because some donors prefer to fund programs in the present rather than in the future, some of the money donated to Nourishing Potential has been used as 'flow-through' while some has gone to

building the capital fund. The model has been successful in providing significant support for community action on food.

Nutritional risk and five-year mortality of older community-dwelling Canadian men: The Manitoba Follow-up Study

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Objectives: To examine nutritional risk and five-year mortality rates of community-dwelling older Canadian men. **Methods:** The Manitoba Follow-up Study (MFUS), established in 1948, is the longest-running prospective longitudinal study of cardiovascular disease in Canada with a cohort of 3,983 healthy men. In 2007, the surviving cohort (n=690; mean age=86.8 years) living in Canadian communities were sent a self-administered Nutrition Survey consisting of SCREEN II, a validated tool assessing nutritional risk of cognitively intact community-living older adults. Five hundred fifty-three completed surveys (80% completion rate) were returned. **Results:** Nutritional risk ranged from a low score of 15 (highest nutritional risk) to a maximum score of 64 (lowest nutritional risk), with 44% of respondents at high risk, 24% at moderate risk, and 32% at low risk. From 2007 to 2012, 208 (38%) of men died, with 1-year, 2-year, 3-year and 4-year survival rates of 91%, 84%, 75% and 64%, respectively. Men in the lowest 20th percentile of the nutritional risk score distribution accounted for 28% of all deaths, and those in the lowest 40th percentile accounted for half of all deaths. Cox proportional hazard models were used to examine the relationship between nutritional risk score and mortality. Each unit decline on the nutritional risk scale is associated with a 7% greater risk of mortality (hazard ratio 0.93 (95%CI 0.89,0.96). Considering two men whose nutritional risk scores differ by five points, the man with the lower score has a 30% increased risk of mortality. The effect of nutritional risk score on mortality is independent of age, body mass index, self-assessment of having aged successfully, and taking four or more medications daily. **Implications & Conclusions:** Early identification of older adults, particularly community-dwelling men, for malnutrition is essential in delaying the progression of morbidly and mortality through individualized interventions.

Development of a decision-tree tool to detect nutrition problems in home-dwelling older adults with Alzheimer's Disease and offer practical solutions to guide health professionals and family caregivers.

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Purpose: Approximately 8% of older adults in Canada are affected by Alzheimer disease (AD) and half live at home. AD confers nutritional risk. However, family caregivers (CG) are often not equipped to handle food-related problems presented by their relative and are at a loss to address or correct dietary issues. The study sought to develop a practical means for triggering effective, targeted nutritional intervention within the outpatient care of older adults with AD, using a "decision-tree" process for detecting and treating nutrition problems, and to support the family caregiver help his family member eat well. **Process:** A systematic literature search was carried out in both the scientific and grey literature to identify key items associated with malnutrition in this clientele. Alerts were drawn from evidence-based criteria in order to help the practitioner provide the caregiver with practical dietary solutions for the caregiver and to key referrals from the frontline health professional to the nutritionist or other health professional. The beta version of the instrument was developed in French along with a User's Guide.

Thirty health professionals with at least 5 years' experience working with this patient population (10 physicians, 10 nurses and 10 dietitians) were recruited to take part in the evaluation of the tool. They will rate the tool using a consensus method by postal survey, based on a detailed questionnaire with a 9-point Likert scale. Percent agreement and kappa statistics will quantify consensus. **Conclusions and recommendations:** A systematic evidence-based approach for detecting nutrition problems in vulnerable community-dwelling older adults with AD will lead to prioritised nutrition care, decrease frailty and early institutionalisation. In future research, the tool will be translated into English and tested and validated in diverse outpatient geriatric care settings across Canada.

Dietary intake and education needs of rural adults at risk of developing type 2 diabetes

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Objectives: To assess the dietary intake and education needs of rural adults from Stratford and Tavistock (Ontario) diagnosed with prediabetes and enrolled in a 6-month lifestyle education program aiming to assist them in preventing or delaying the onset of type 2 diabetes. **Methods:** Sixty-eight rural adults identified to have impaired fasting glucose and/or impaired glucose tolerance referred to the program by their physician gave informed consent to participate in the research and education program. Before the start of the education program, they completed a baseline demographic questionnaire and a 3-day food intake record. Anthropometric measurements including weight and height were also taken at baseline. Food intake records were reviewed with clients by a dietitian and analyzed using the ESHA Food Processor SQL version 10.10.0. **Results:** These rural adults were Caucasians. They were 61.8±8.8 years old (average ± standard deviation) and their body mass index was 32.5±5.6 kg/m². Baseline food intake records indicated that, on average, daily intakes of sodium, fiber and saturated fat were 3210±1470 mg, 22.9±9.8 g, and 11.0±3.2 percent (%) of energy intake respectively. Ninety-four percent of these adults had a sodium intake higher than the recommendation of 1500 mg/day. Fifty-six percent of them had a fiber intake below 25 g/day, and 86% had a saturated fat intake greater than 7% of energy intake. **Implications & Conclusions:** Our preliminary analysis of baseline food intake records in this group of rural individuals with prediabetes from Stratford and Tavistock suggests that the development of prevention education content for Caucasian rural adults at risk of type 2 diabetes should put an emphasis on how to reduce dietary sodium and saturated fat intake and to increase intake of dietary fiber. This program was made possible by the grant from the Public Health Agency of Canada: Canadian Diabetes Strategy.

An examination of emergency food relief services trends: A community case example

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Purpose: This project included background data collection for a study examining food security and the transition from incarceration to re-integration. The purpose of the project was to determine the scope of food bank usage in a community (Mission, BC) where two federal prisons are located in order to map out contextual factors impacting local food security. **Process:** Local food bank usage statistics available from the food bank were examined; this data is gathered following a national standardized protocol set by Food Banks Canada used to produce national and annual Hunger Count Survey reports. Data collection and analysis included comparing local, provincial, and national hunger counts, observation of food bank services, and interviews with food bank providers to determine the features of local food bank usage (e.g., demographics). **Findings:** Food bank usage in the community had increased dramatically from

2011-2012. Local usage was roughly double the national average for Aboriginals (23.4% locally and 11.3% nationally) and persons with disabilities (26.4% and 14.9%). It was also much higher for post-secondary students, those on income assistance, and for couples without children. More than one-third (39.5%) of the food bank recipients were children; slightly higher than the national rate at 38.4%. Observation of services revealed that people were coming to the food bank up to 6 hours prior to opening in order to have more food choices available to them. Changes in food bank usage were believed to be due to factors such as high costs of housing, unemployment, and the recent closure of another emergency food relief provider. **Conclusions:** The results suggest that concerted community efforts to address local food insecurity for particular groups (e.g., youth) and at all levels (e.g., emergency relief, capacity building, and policy) are needed. Implications for those transitioning from incarceration into the community are yet to be explored.

Patient Services

nutritionDAY in Canadian Hospitals: Descriptive analysis from the Nutrition Care in Canadian Hospitals Study, Canadian Malnutrition Task Force

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Objectives: nutritionDAY is a self-audit process to track and raise awareness of nutritional status and food intake of patients worldwide, which includes a patient self-report of food intake and barriers to this intake. Nutrition Care in Canadian Hospitals is a prospective cohort study that includes extensive measures on nutritional status and food intake, as well as the self-report meal intake form from nutritionDAY. The objective of this analysis is to provide a descriptive overview of this data. **Methods:** Hospitals were purposefully recruited including community and academic centres in 8 provinces. In 13 hospitals, nutritionDAY forms were completed at least once by 678 adult patients of medical or surgical wards. Patients were asked to complete the forms at a single meal on three days in week one and two days in weeks two and three. Descriptive statistics summarize these data with data amalgamated across forms for each patient. **Results:** On average, 32.9% of patients consumed less than 50% of their meal, with a worsening intake for those with a longer length of stay (60% consumed < 50% of meal in week 3). Only 15.8% received at least one supplement on their meal tray during their stay. The most common reasons for poor intake were in week 1 were lack of hunger (31.3%) and not liking the food (19.9%); 32.5% reported that their usual appetite was less than 50% of their norm. 31.2% reported food being brought in from outside, with fresh fruit (23%) and cakes/biscuits (9.8%) being the most common individual items. **Implications & Conclusions:** nutritionDAY patient intake data provides a quick assessment of nutrition challenges experienced by acute-care patients. This form may be useful as part of a screening and monitoring process, especially for patients who stay in hospital beyond one week.

Identification of nutrition intervention needs following stem cell transplant

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Objectives: 1) To identify hematopoietic stem cell transplant (HSCT) patients' needs for nutrition information at hospital discharge and two weeks post-discharge. 2) To assess HSCT patients' nutrition status, risk factors for malnutrition, and need for nutrition intervention at time of discharge.

Methods: Semi-structured interviews were conducted with HSCT patients (n=6) one day prior to discharge and two weeks post discharge to identify current and anticipated nutrition concerns and side effects. Nutrition status was assessed using the Patient Generated Subjective Global Assessment (PG-SGA). Thematic analysis was used to analyze interview results. **Results:** At discharge all participants felt well informed about nutrition issues post-transplant (e.g. increased protein needs, necessity of safe food preparation) and were satisfied with the education and resources provided in hospital. All PG-SGA scores in hospital were > 9 points which indicates a critical need for symptom management and/or nutrition intervention. Two weeks post-discharge, patient's questions focused on vitamin-mineral and protein supplements, and duration to follow food safety and high protein guidelines. Challenges post-discharge included consuming adequate intake while experiencing side effects such as anorexia, fatigue, nausea, emesis, and taste changes. Three participants experienced severe unintentional weight loss (>5% of body weight) during the two week period post discharge secondary to these side effects.

Implications and Conclusions: High PG-SGA scores and unintentional weight loss due to nutrition-related side effects indicates that HSCT patients in this study were at increased risk for malnutrition and require continued support from a Registered Dietitian. An educational package including information on food safety, supplements, protein needs, snack ideas, and managing side effects, would be beneficial to assist HSCT patients in optimizing nutrition status.

Volunteer Patient Visiting Program: A patient-centered approach to eliciting food preferences with goals to improve patient satisfaction and reduce food waste

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Purpose: In July 2011, Food Services partnered with Volunteer Resources Department at St. Paul's Hospital to develop the Volunteer Patient Visiting Program. The purpose of the program is to conduct visits for newly admitted patients. The objectives are to increase patient satisfaction by engaging patients in conversation about their meals, obtaining food preference information using a food preference form, explaining how to mark a menu, and reducing food waste. The program also offers an extra dimension of professional development for volunteers to gain direct patient experience. **Process or Content:** To initiate the program, Food Services and Volunteer Resources jointly recruited new volunteers and hosted an orientation session. There are 3 sub-programs: General Medicine, Cardiac, and Flying Squad. While General Medicine and Cardiac volunteers only visit patients on their respective units, Flying Squad volunteers "fly" throughout the hospital. Volunteers also carry a pager so that clinical dietitians may page volunteers to assist with menu marking. Diet technicians process the food preference information received by the volunteers. There were no financial costs and, after the initial time commitment to set up the program and recruit volunteers, only periodic attention is required throughout the year. **Project Summary:** To date, 78 volunteers currently participate in the Volunteer Patient Visiting Program. The program runs 5 2-hour shifts per day, every day, including weekends. The program has increased patient satisfaction to 94%, and reduced food waste by 25%. Volunteer engagement has increased by 6-fold in volunteer hours. **Recommendations and Conclusions:** The Volunteer Patient Visiting Program has been highly successful as an effective and efficient model. It has fulfilled the needs of Food Services, Volunteer Resources, and Clinical Nutrition Services, and provided experiential learning opportunities for nutrition student volunteers. There are plans underway to implement a similar volunteer program in other hospitals in Vancouver.

Public Health Nutrition

Risky eating behaviors, body thin-ideal internalization and anthropometric indicators. Comparison between Mexican and Canadian female university students

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Objective: The aim of this study was to compare the prevalence of risky eating behaviors (REB), body thin-ideal internalization (BTHIN), and body shape dissatisfaction (BSD) between two samples of university students. In addition, relationship of these factors with body mass index (BMI) and waist circumference (WC) was examined. **Method:** A cross-sectional descriptive correlational design was carried out between two matched female samples (18 to 25 years old: $X = 20.17$, $SD=1.67$); one from Universidad Autónoma del Estado de Hidalgo (UAEH) in Mexico (N=42) and the other from Université de Moncton (UM) in Canada (N=42). Self-reported instruments were used: the Brief Questionnaire for Risky Eating Behaviors (BQREB) and the Attitudes Towards Body Figure Questionnaire (ATBF). Body dissatisfaction was measured with a *continuum* of nine body shapes. Weight, height and WC of each participant were measured. Descriptive analyses were conducted, as well as χ^2 for comparisons between groups. **Results:** Based on the cutoff points of both questionnaires, (BQREB>10; ATBF \geq 37), REB was higher in UAEH students (14.3% vs. 7.1% UM students); meanwhile BTHIN was more prevalent in UM students (28.2% vs. 24.4% UAEH students). BSD in the sense to be thinner was very similar in both samples (54% UAEH vs. 59% UM). Higher percentages of REB, BTHIN and BSD were obtained for the overweight and obese participants. WC was not a deciding factor for the prevalence of REB and BTHIN; however, it explained BSD in both samples. **Implications & Conclusions:** A positive association between BMI and REB was observed. Results also show that when REB increases, BTHIN also increases. This study also confirmed that REB, BTHIN and BSD are present in both groups of female university students; nevertheless prevention interventions that take into account the differences observed in both samples should be developed.

Exploratory and Hypothesis-Oriented Factor Analyses of Iowa Infant Feeding Attitude Scale: Alberta Pregnancy Outcomes and Nutrition (APrON) study

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Objectives: The aim of this study was to evaluate the scale structure of the Iowa Infant Feeding Attitude Scale (IIFAS) 17-item questionnaire for assessing maternal infant feeding knowledge and attitudes. Despite its widespread use, the factor structure of this tool has not been analyzed. **Methods:** Pregnant women recruited from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (n=347) completed the IIFAS. **Results:** Internal consistency statistics on the IIFAS identified item redundancy and 7 items were deleted using explicit reduction criteria. Responses to the 10-item questionnaire were subject to exploratory factor analysis and two meaningful factors were retained based on explained variance, scree test, and interpretability criteria. Six surviving items loaded on the first factor, were labeled as “perceived health benefits”, while four items loaded on the second factor were labeled as “comfort and perceived acceptability”. The two-factor solution was tested in a subsequent confirmatory factor analysis model and it showed acceptable goodness of fit. The reliability of the 10-item IIFAS was robust (Cronbach's $\alpha=0.82$) and its predictive validity was confirmed ($p<0.05$). **Implications & Conclusions:** The short-

form IIFAS may be used in clinical settings as an easily-administered, valid and reliable tool to identify mothers at risk of early introduction of foods or cessation of breastfeeding.

Securing Vancouver Coastal Health Research Institute Team Grant for Public Health: Implications for Practice

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Purpose: The process of securing and implementing a Vancouver Coastal Health Research Institute Team Grant to study vitamin D and breastfeeding rates of two month old infants in Vancouver and Richmond, British Columbia will be presented. Implications for public health practice following the study will be discussed. **Process or content:** In 2008, this research was proposed and lead to funding, implementation and publishing of the project results in December 2011. Parents were surveyed in the summer of 2010 on feeding practices and vitamin usage. The study results were added to the performance indicators in the Infant, Child and Youth Service Plan in 2011. Results were used to provide input to the Health Canada review process of the draft Nutrition for Healthy Term Infants document. **Project Summary:** The research team included academics from the University of British Columbia, public health nurses from six community health offices, a clinical nurse specialist, research assistants and the community nutritionist. The community nutritionist was the principal investigator for the study and managed the project. Study results showed approximately 90% of infants were receiving some breast milk at two months of age and 80% were receiving vitamin D supplements. Public health nurses received the study results and requested clarification on supplementation for infants on mixed breast milk and formula feeds. Simplified messages were developed to address this need. **Recommendations & Conclusions:** The study experience was very positive for all involved. This success was due to a number of factors. The academic support and manpower of research assistants were major attributes of success. The diverse skills of the research team were also critical. The principal investigator managed the team processes, communications and grant details over the 3 year process. A future study to monitor breastfeeding and vitamin D supplementation of older infants is recommended.

School Nutrition

Healthy foods vendor's fair for schools

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Purpose: The purpose of the Healthy Foods Vendor's Fair for school is to make it easy to access healthy foods for vending machines, "hot" lunches, fund-raising, celebrations, canteens, cafeterias, sporting events, open houses, meetings and any other event where foods are provided by the schools. This will assist with the implementation of "Nourishing Minds", the provincial government healthy food policy.

Process: National and local food companies that have healthy food products are invited to the fair. A nutritional analysis of their foods is performed to ensure the foods meet the provincial standards in "Healthy foods for my school". Invited participate include principals, teachers, community and food co-ordinators, cafeteria workers, school community council representatives, suppliers for high school cafeterias, university and community college students in nutrition and education and decision makers for foods in public facilities. At the fair, the participants taste healthy foods appropriate for schools. They are provided with contact information and a list of healthy foods available from the vendors. **Supporting Information:** "Nourishing Mind" from the Saskatchewan Ministry of Education mandates that school divisions have a healthy school food policy and that schools provide 100% healthy foods.

www.education.gov.sk.ca/nourishing-minds All foods sampled or featured on handouts comply with the Saskatchewan standards in "Healthy food for my school" www.health.gov.sk.ca/healthy-foods-for-my-

school **Recommendations:** Nutritionists work with food producers/vendors to feature healthy foods for schools. Food vendors provide tasty healthy foods at the fair. Contact information is readily available to the schools. **Conclusion:** Healthy Foods Vendor's Fairs for schools provide venues for school personnel to taste healthy foods. They are excellent and efficient methods of connecting food vendors with schools. This will assist with the implementation of healthy school food policies.

Alternative Food Systems for School Nourishment Programs

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Objectives: (1) Determine how school and community-based [after-school] nourishment programs in urban, rural and northern areas of Manitoba are currently sourcing and obtaining their food. (2) Identify other potential food supply sources, including alternative food systems, which could be available to nourishment programs, and determine feasibility from participant perspectives. (3) Compile information from 1 and 2 to develop processes and tools that assist schools in accessing alternative food sources.

Methods: (1) Questionnaire survey to school food program coordinators; (2) school food program documentation review; (3) interviews with school personnel and with food producers/providers. **Results:** Findings revealed the dominant use of conventional food systems and food sources within school food programs. Schools reported struggles with sustainability of food programs in terms of procurement, staffing, and finances. Environmental concerns and supporting local businesses were of relatively low salience. A few programs do strive to include alternative practices, but report a range of barriers, including cost, access, food safety and consumer knowledge gaps. There was significant interest in better utilising local food systems for school food programs and several practical and educational needs and opportunities were identified. **Implications & Conclusions:** There are educational and societal benefits to strengthening linkages between the pedagogic and practical discourses of food, health and environment in school and community. The study reveals both synergies and disconnects between people, sectors, and food initiatives, and is a starting point in the process of building connections between food providers and school programs to make healthy, appropriate foods and locally produced foods more easily available.

Technology in Health Education

An online education module improves dietitian attitudes and knowledge regarding recommending and ordering multi-vitamin/mineral supplements

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Objectives: To determine the attitudes and knowledge of Fraser Health (FH) dietitians (RDs) in regards to recommending and ordering multivitamin/mineral (MVM) supplements prior to and following an online education module. **Methods:** A narrated PowerPoint presentation and electronic resources were used as the educational intervention. After undergoing external review for face and content validity, six attitude questions and a 15 item knowledge test were administered pre and post intervention. The attitude questionnaire utilized a five point Likert scale (the higher value reflected a more positive attitude) with a maximum summative score of 30 points. The knowledge test was worth a maximum of 15 points. Change

in attitudes and knowledge were analyzed by the Wilcoxon Signed-rank and dependent t-test, respectively. **Results:** Of the 123 eligible RDs, 74 (60.2%) were recruited, 57 (77.0%) completed the study and 55 (96.5%) were included in the final analyses. The pre- and post- attitude questionnaires were internally reliable (alpha 0.83 and 0.86, respectively). The attitude question with the lowest rating both pre and post intervention was related to drug-nutrient interactions. Summative attitude scores were significantly higher on the second questionnaire compared to the first ($t=92.5$, $p<0.001$). There was a significant increase (mean change= 1.44 ± 1.49 ; $t(54)=7.16$, $p<0.001$) in the proportion of correctly answered knowledge questions from pre ($78.0\% \pm 10.0\%$) to post (mean = $87.4\% \pm 6.0\%$) test. **Implications & Conclusions:** Canadian RD attitudes and knowledge test performance regarding ordering and recommending MVM supplements improved post online intervention. The high recruitment and completion rate confirm this was an effective continuing education strategy. The low participant confidence related to drug-nutrient interactions suggests it should be an education priority for FH. Future research should focus on a larger sample and include a control group to determine whether the improvement was due to the education intervention.

Self-reported effectiveness of an online meal planning service in facilitating type 2 diabetes self-management

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Background: Accessing online meal planning was associated with reduced weight and lower systolic blood pressure in type 2 Diabetes (T2D). **Purpose:** To determine, in users of an online meal planning service (SOScuisine.com) tailored for T2D, the perceived importance of goals relevant to diabetes self-management, and the perceived effectiveness of the service in achieving these goals. **Methods:** A questionnaire was sent to 579 subscribers to the weekly T2D meal plans that meet CDA's Clinical Practice Guidelines nutrition recommendations. Respondents were asked to rank, based on perceived importance, 9 pre-defined goals relevant to diabetes management, and rate the extent to which the meal plans helped to attain these goals. **Results:** Respondents [94 women, 27 men; aged 58 ± 9 (SD) yrs] ranked the goals as follows: Control glycemia (4.64/5); Cook healthier meals (4.47/5); Simplify meal planning (4.16/5); Cook tastier meals (4.06/5); Save time (4.05/5); Lose weight (4.04/5); Lower cholesterol/triglycerides (3.61/5); Save money (3.46/5); and Lower blood pressure (3.42/5). The service was 'A lot helpful' in reaching the 5 most important goals and 'Moderately helpful' in reaching the 4 least important goals; 17% of respondents reported preparing all, 29% most, 37% half, 13% a few and 4% none of the suggested meals. Frequency of use was positively associated with perceived effectiveness for all goals. **Conclusion:** Our results of self-reported data from 31% of users of an online meal planning service suggest that it is an effective adjunct to existing resources available to help people with T2D in their attempt to ensure healthy eating habits.

Social Media Used in The SNAAKS Plus Xr'cise program: A Theory Based Nutrition Education Program Delivered by Peer University Educators

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Purpose: Using social media, the Student Nutrition Attitudes, Actions and Skills plus exercise (SNAAKS⁺ Xr'cise) program aimed to improve the eating behaviours of College and University students through a five week theory-based curriculum delivered by a registered dietitian and two peer nutrition educators. **Process:** This theory-based nutrition program used constructs from Socio-Cognitive Theory to address four target eating behaviours, plus exercise. Five nutrition themes were introduced during five

consecutive weeks to coincide with the target behaviours. The themes included; 1. Evaluating your eating and setting goals, 2. Breakfast grab-and-go, 3. Getting Fresh – eat more fruits and vegetables, 4. Cutting fat and sugar, 5. Evaluate your success. Using Facebook, a food blog and Twitter, a dietitian and peer nutrition educators delivered the curriculum through daily nutrition posts, questions, responses and specific nutrition information and strategies targeting that week's behaviour. **Project Summary:** The SNAAKS⁺ Xr'cise program is an expanded version of a nutrition program previously delivered in person to University and College students by peer nutrition educators. It is comprised of five nutrition lessons that target a specific eating behaviour. The behaviours include the consumption of; a healthful breakfast, fruits and vegetables, whole grain foods and decreased consumption of fast foods and sweetened beverages. Lessons were adapted to be delivered on-line through Facebook, a food blog and twitter by a dietitian and 2 peer educators. **Recommendations & Conclusions:** Social media are an accessible and inexpensive method of delivering nutrition education to a broad section of College and University Students. These communications media are well established among this population therefore the implementation of the SNAAKS⁺ Xr'cise program achieved positive results in student participation and desired eating behaviours. Using Facebook, a food blog and twitter to promote a theory-based nutrition program may enable dietitians to broaden the reach of their nutrition target group.

Revitalizing contemporary diabetes nutrition care in generalist tele-dietetics practice

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Purpose: To refresh generalist tele-dietitians' nutrition counselling techniques for clients with diabetes. This project's primary aim was to improve dietitians' knowledge in and confidence on implementing individualized diabetes nutrition care plans while incorporating the Canadian Diabetes Association (CDA) Guidelines. The intended outcome of this project was that contemporary nutrition training on diabetes would make implementation of the CDA Guidelines more practical, feasible and consistent for dietitians working in a telehealth setting. **Process:** A survey of and subsequent discussions with 9 full time and 2 part time tele-dietitians guided the content of ten self-learning packages. Learning packages went through six iterations between a certified diabetes educator with two years of recent experiences, dietetics practice improvement leader with thirteen years of experience in nutrition curriculum design, and generalist tele-dietitians with varied diabetes care backgrounds. **Project Summary:** The ten self-learning packages, comprised each of two-page type-written documents, were developed based on the key learning needs and objectives identified by participating dietitians. Packages were released weekly over a ten week period, as opposed to all at once, to best fit into tele-dietitians' structured work environments. Written material packages were designed for ongoing learning and development purposes. A three-month follow up survey revealed tele-dietitians' increased confidence on helping callers with diabetes, with many dietitians referring back to the packages to optimize diabetes nutrition care.

Recommendations & Conclusions: Although the development of written materials was initially time consuming, it serves as a template for future projects and allows the dietitians to revisit the content on an as-needed basis. This type of training reduced disruption to tele-dietitians' daily workload, and synthesized essential information into manageable amounts. HealthlinkBC's Dietitian Services intends to replicate this model for nutrition care of chronic kidney disease. Furthermore, HealthlinkBC's Nursing Services is considering an adaptation of these models for nursing and diabetes care.

Undergraduate Education and Dietetic Internship

The use of non-traditional placement settings for dietetic individual case management clinical placements by Australian Universities

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Objectives: This study aims to (1) identify the practices used by Australian Universities to assess the performance of dietetic students during their individual case management clinical placements; and (2) identify how Australian universities utilise underserved areas, such as aged care and primary health, for these placements. **Methods:** A 14 item previously piloted anonymous on-line *Qualtrics* questionnaire was conducted with placement coordinators from Australian universities with accredited dietetics programs. Content validity was achieved through consultations with three researchers experienced in competency-based assessment and /or student assessment practices within the dietetics profession. The results were analysed in Microsoft Excel 2007 using descriptive statistics. **Results:** Most universities are using a multi-method approach to the assessment of dietetics students' performance during their clinical placements, with direct observation by a clinical supervisor being a key component (n=10, 67% response rate). Eighty percent of universities are relying on the hospital sector to provide the majority of their individual case management clinical placements. Non-traditional settings, however, have been used by 70% of universities for a small number of students for durations of 1-2 weeks. **Implications and Conclusions:** Our aging population and the increase in chronic disease is driving a move towards a consumer-led integrated health care system where workforce flexibility is highly valued. Expanding the settings used for clinical placement from hospital to underserved areas will increase clinical education capacity, enable students to develop and demonstrate entry level competency in a variety of contexts, and better aligned with the national health reform and health workforce development agendas. This research supports the need to gain a better understanding of the development of the individual case management competencies in underserved placements settings and the training of clinical supervisors in competency-based assessment in these settings.

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Moving pedagogy into practice: Considerations for implementing an interdisciplinary project in higher education

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Purpose: Interdisciplinary education (IDE) prepares students for the workplace by developing an integrated understanding of various types of disciplinary knowledge applied to a particular topic. The literature supports early student engagement with IDE to foster foundational epistemologic and ontologic views that benefit collaborative interprofessional practice. Graduates from a food, nutrition and health undergraduate program follow different career paths based on their core disciplinary knowledge; however, professional practice requires an integrated understanding of other disciplines. The purpose of the pilot project was to promote small group, early engagement wherein students explored a food-related topic in-depth through a continuum from food science to nutritional health. We share key aspects of our experience as instructors in moving this project from concept to implementation. **Process or Content:** Eleven students simultaneously registered in introductory food science and human nutrition classes voluntarily participated in the project. Together, students and instructors deliberated suitable topics; the students chose two topics and self-selected one topic to research. Through regular dialogue, the instructors critically reflected on the process of implementation, including challenges encountered during the phases of conceptualization and integration into the existing structure of two introductory courses: food science and human nutrition. **Project Summary:** The early phases of this project offered lessons that revealed key considerations for educators contemplating an IDE project, including: finding an instructional partner with an interest in IDE, selecting the "right" courses (e.g., level, pedagogical approaches), identifying key knowledge and skill outcomes, and developing clear project instructions, evaluation criteria and student advising protocols. **Recommendations & Conclusions:** The inherent collaborative nature of IDE requires an investment of time and dialogue to critically reflect on personal teaching practices such that the outcome will deepen students' integrated understanding of various

disciplinary knowledges. Funding has been secured to conduct a summative student evaluation of the project.

UBC integrated dietetics program alumni survey: 2007-11 graduates

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Objectives: To profile alumni from the initial years of UBC's integrated dietetics program and assess their satisfaction with the program's contribution towards addressing their teaching and learning and professional preparation needs. **Methods:** An online survey was developed and administered with the oversight of a professional advisory committee. Quantitative data were analyzed using means (\pm SD) and/or frequency distributions; comments were summarized using content categorization. **Results:** Respondents (n=96, response rate=65%) were 26 \pm 4 years of age at graduation. About half (47, 50%) had a degree or diploma at program entry. Almost all were female (91, 98%), resided in BC (88, 95%) and were employed in dietetics (87, 91%), about three quarters (63, 72%) in clinical roles (acute care, longterm care, and/or ambulatory clinic settings). The majority indicated satisfaction with the campus-based (71, 75%) and internship (75, 81%) program components. Nutrition over the lifespan, clinical dietetics, and professional practice courses were identified by the highest proportion of respondents (75-92%) as courses contributing to foundational knowledge and professional preparation. Most (86-92%) indicated satisfaction with the program's contribution to their professional preparation in the five entry to practice competency areas. The majority (73, 79%) indicated that if revisiting their career choice, they would choose dietetics again. Identified areas for program improvement included: timing of exposure to practice concepts and environments, counselling skills training, business skills training, approaches to academic coverage of topics relevant to community practice, and preparation for nutrition care roles in internship. **Implications and Conclusions:** While feedback was positive overall, areas for improvement were identified. Results were discussed at a stakeholder retreat and will also be used for student advising and program planning purposes.

Facilitating learning of nutritional assessment: ABCD+EF, and using the Organizational Framework for Exploring Nutrition Narratives (OFFENN)

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Purpose: Expanding the components involved in nutritional assessment raises student awareness of the complexity inherent in assessing nutritional needs; using a conceptual framework provides students with a way to organize information gathered about a case study client. **Process or Content:** *Eating/Environment* (E) and *Family/Food* (F) were added to the Anthropometric, Biochemical, Clinical, and Dietary components of the nutritional assessment approach to encourage students to consider client eating contexts, and the meanings clients attribute to food and eating. *Eating* refers to the experience of eating, and clients' relationships with food; *Environment* refers to where and when clients eat; *Family* refers to family relationships expressed with/through food, and clients' feeding roles; and, *Food* refers to food security considerations, and ability to prepare food. Students use the OFFENN to organize and sort through information gathered for a real or imagined client (themselves, family members, friends, or imagined persons of any age or health status). The OFFENN consists of *Personal, Household, Beyond Household, and Unthoughts* domains; and *Events/Facts, Beliefs/Values, Actions, and Reactions* filters through which a client recounts their nutritional narrative (diet history). Students use the OFFENN to learn about what information to gather, and how to gather and synthesize it

to articulate and prioritize client nutritional and learning/support needs. **Project Summary:** Students undertake an individual assessment as their term project, they discuss their findings in peer consultations and incorporate emerging peer recommendations into their assessments, then present synopses of their work in in-class Showcase Events (preparation for conference-style presentations). **Recommendations & Conclusions:** By expanding nutritional assessment parameters, students develop in-depth appreciation of the issues involved in assessing client needs. OFFENN use complements the addition of the EF parameters, and provides students with a strategy to remember what to include in nutritional assessment and in framing recommendations. These approaches will continue to be used.

Choose your own adventure: A discovery learning approach for a Nutrition and Disease course

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Purpose: In a fourth year undergraduate Nutrition and Disease course, students had the choice from eight options for assignments on cardiovascular disease, diabetes, gastrointestinal conditions, and cancer. **Process:** Project options and the percent of the 34 students who selected each (in order of popularity) were: 1) interview with a person living with a given condition (n=25; 74%); 2) annotated bibliography (n=23; 68%); 3) food-based expression of learning (n=22; 65%); 4) arts-based expression of learning (n=20; 59%); 5) critique of a resource for people living with a given condition (n=16; 47%); 6) synopsis of key recommendations in the nutritional management of a given diagnosis (n=12; 35%); 7) researching the history of nutritional care for a condition covered in the course (n=9; 26%); and, 8) interview with a dietitian who works with people living with a given condition (n=4; 12%). One student proposed and undertook a personal memoir of family illness. **Project Summary:** The class times included lecturettes, small group problem solving, and large group discussions. In weekly laboratory sessions, students completed seven case studies, and selected two of these to submit as formal reports. Dietitians of Canada's Practice-based Evidence in Nutrition (PEN) was available to students in lieu of an assigned textbook. Each student selected their favourite project to present in *Celebrations of learning* events. From these, students enhanced their learnings about aspects of nutrition management for a wide array of conditions, and observed how others approached learning. **Recommendations & Conclusions:** While some students had initial reservations about the amount of choice and freedom inherent in devising one's own learning plan, evaluation feedback indicated student enthusiasm for the depth of learning they experienced.