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**INTERN RESEARCH ABSTRACTS**

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**Food for all: the availability and cost of nutritious foods for Canadian individuals on special diet, using National Nutritious Food Basket restricted from sodium and gluten**

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**Background:** In 2004, 9.2 % of Canadian households were experiencing food insecurity, with higher rates among socioeconomically disadvantaged families. Having consistent access to sufficient healthy food according to one's dietary needs is an important determinant of public health. Health Canada's National Nutritious food basket (NNFB) is a survey tool to measure food security. While NNFB was developed to assess the cost and availability of a basic nutritious diet for Canadian individuals, it doesn't include special dietary needs addressing specific disease conditions like heart disease, diabetes or celiac disease and the accessibility and affordability of a nutritious basket for individuals on special diets has not been examined. **Objectives:** To assess and compare the cost and availability of NNFB and two other suggested baskets substituted with gluten-free and sodium-restricted alternatives that address the daily dietary needs of individuals with celiac disease and individuals who have to or wisely want to limit their sodium intake. The second objective was to determine the weekly cost of a basic nutritious diet for a single, 31-50 year old, male individual with dietary sodium and dietary gluten constraints and to compare them to the weekly food cost of those consuming standard products. **Methods:** The availability and cost of 67 minimally processed and commonly consumed food items of the NNFB and the other two alternative baskets containing sodium restricted and gluten-free substitutes were surveyed from 10 chain grocery stores across Montreal Island over two weeks. The total average cost and the weekly food cost were calculated using the Ottawa public health food costing spreadsheet and protocol. **Results:** The total average cost of the NNFB substituted with gluten-free alternatives is 19.8 % and the NNFB modified with sodium restricted version of food items is 5.22 % more expensive than the standard basket in Montreal. On average, 3.4 of the 14 (24%) food items were available in the gluten-free version per store and 10.4 of the 19 (55%) food items were found in the sodium restricted version per store. A single, 31-50 year old male individual has to pay approximately \$12 extra per week for his gluten-free dietary constraints and about \$5 per week additional to the cost of regular nutritious diet for restriction of sodium in everyday food intake. **Conclusion:** The availability and affordability of a nutritious diet containing the special needs of Canadian individuals with dietary restrictions like sodium or gluten is limited. This may lead to consumption of an inadequate nutritious diet and less

compliance to the dietary constraints

## **Non-dairy milk consumption is associated with lower serum 25-hydroxyvitamin D in early childhood**

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**Objectives:** For our primary objective, we aimed to determine if there is an association between daily volume of non-dairy milk consumption and serum 25-hydroxyvitamin D in healthy young Canadian children. For our secondary objective, we aimed to explore whether cow's milk consumption modifies this relationship. **Methods:** Children attending one of 7 pediatric or family medicine primary care practices were recruited during routine primary healthcare. For our primary analysis, a multiple linear regression model was developed to test the association between daily volume of non-dairy milk consumption and 25-hydroxyvitamin D, adjusted for age, gender, season of serum collection, vitamin D supplementation, skin pigmentation, and daily outdoor play time. To explore whether cow's milk modifies this relationship, the interaction between non-dairy milk and cow's milk consumption was included in this model. **Results:** 2831 children were included in the analysis. Mean age was 2.9 years, 53% were male, 53% were taking a vitamin D containing supplement, 87% of children were consuming cow's milk and 13% of children consumed non-dairy milk daily. In the univariate analysis, each cup of non-dairy milk consumed per day was associated with a 2.3 (P=0.005, 95% CI: 1.0, 4.9) lower mean 25-hydroxyvitamin D concentration. Multiple linear regression, adjusted for

clinically relevant covariates, revealed that each additional 250 ml cup of non-dairy milk was associated with a 3.8 nmol/L (P=0.01, 95% CI: 1.0, 8.6) lower 25-hydroxyvitamin D among children who drank cow's milk, and a 0.3 nmol/L (P=0.79, 95% CI: -3.0,3.1) higher 25-hydroxyvitamin D among children who did not drink cow's milk. **Implications and Conclusions:** Non-dairy milk consumption is associated with a lower 25-hydroxyvitamin D level in early childhood. This relationship appears to be modified by cow's milk consumption, suggesting that consumption of lower vitamin D containing non-dairy milk may be replacing consumption of higher vitamin D containing cow's milk.

## Hunger on campus: Characterizing food bank users at a Canadian university

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**Objective:** Many post-secondary students experience financial difficulties, which can impact their ability to purchase food. The objective of this study was to evaluate sociodemographic and educational characteristics of students who requested food hampers from the University of Alberta (UAlberta) Campus Food Bank (CFB) in Edmonton, AB. The CFB is a registered charity that provides emergency food assistance to UAlberta members in financial distress.

**Methods:** Cross-sectional data on sociodemographic (e.g., gender, age) and educational (e.g., course load, student type) variables were collected by the UAlberta CFB from all registered clients between September, 2010 to July, 2013. Clients were included in this analysis if they were undergraduate or graduate students; non-students including UAlberta staff, alumni and post-doctoral fellows were excluded. **Results:** Among 596 individuals who registered at the CFB during the study period, n=568 (95%) met the inclusion criteria. Analyses showed that clients were, on average, 27.9±8.0 years old, mostly female (n=334; 59%), Canadian (n=358; 69%), and lived alone (n=384; 68%). A minority (n=104; 18%) had children living with them. The most common sources of income included paid employment (n=153; 27%) and student loans/lines of credit (n=140; 25%). Most clients were full-time students (n=536; 96%) who were studying at the undergraduate level (n=368; 66%). **Implication & Conclusion:** At UAlberta, the typical CFB user requiring food assistance as a result of financial constraints is a female Canadian who lives on her own, studies at the undergraduate level, and receives income through several sources. This study will help to better understand the characteristics of student clients who use the CFB, which may help the CFB improve the services it provides to students. Multimethod research is underway to further improve our understanding of food insecurity among UAlberta students. This information will inform CFB service planning and priority setting.

## Vitamin A (Retinoic Acid) treatment in obese and insulin resistant mice (ob/ob)

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**Introduction:** Liver retinol binding protein (RBP4) is a 1:1 serum transporter for vitamin A (ROL-retinol). RBP4 is also an adipokine associated with obesity and diabetes. Reducing serum RBP4 improved on insulin resistance (IR). Literature shows retinoic acid (RA) lowers serum ROL in rodents. **Hypothesis:** RA treatment will reduce serum ROL and RBP4, decreasing IR and glycaemia. **Objective:** Evaluate RA treatment impacts on insulin and glucose tolerance, ROL, serum RBP4 and body weight in *ob/ob* mice a model of obesity and IR. **Methods:** Sixteen (n=16) *ob/ob* mice, split in two groups (n=8 each), one treated with RA at a dose of 100 µg in 100 µL/day (~2µg/gBw/day) in corn oil (vehicle) and another just with vehicle for 16 days. Eight (n=8) healthy C57BL/6J mice, served as control. Standard food was given *ad-libitum*. Body weight, food consumption and locomotion were monitored daily. Insulin and glucose tolerance tests were performed. Serum fasting glucose, RBP4 and ROL were analyzed. Subcutaneous fat (SF) and visceral fat (VF) tissue sections were stained for histology. **Results:** Mice treated with RA had significantly decreased weight gain, but locomotion and food intake did not differ. They had lower ROL, RBP4, fasting blood glucose and improved glucose and insulin tolerance tests, indicating better peripheral insulin sensitivity. Lower body weight in isocaloric food intake conditions and reduced adipocytes sizes in SF and VF tissues of RA treated animals suggests higher basic metabolism. **Conclusions:** The metabolism of retinoid, insulin and glucose, impaired in obesity and diabetes, were improved by RA treatment. Also RA reduced body weight gain by reducing fat mass maybe thorough increased energy expenditure. This phenomenon may occur when beige-brown alike fat is activated. RA shows therapeutic potential for obesity and type 2 diabetes. **Key words:** Obesity, Insulin resistance, Diabetes, Retinoic Acid, Energy expenditure, Brown/Beige fat.

## Vitamin A family molecules as biomarkers in obesity and insulin resistance

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**Introduction:** Visceral fat (VF) has stronger epidemiologic correlation with obesity, insulin resistance (IR) and type 2 diabetes (T2DM), than subcutaneous fat (SF). Adipose tissue remodeling is influenced by Vitamin A (ROL) in mammals. The RBP4, a serum ROL carrier but also an adipokine, was shown to be in direct correlation with obesity and insulin resistance (IR). **Hypothesis:** Differences in retinoid metabolism between VF and SF may show up early in obese and insulin resistance patients and can serve as early biomarkers for type 2 diabetes. **Objective:** Evaluate the potential of serum RBP4 and ROL as biological markers for obesity and insulin resistance compared with traditional markers used in obesity and type 2 diabetes assessments. **Methods:** Enrolling four groups of 12

subjects (n=48) : Group A, healthy controls; Group B, obese diabetics with an A1c > 7%; Group C, obese diabetics with an A1c < 7%; Group D, obese non-diabetics. RBP4 was measured by western blot/image quantification and ROL by HPLC and were correlated with BMI, waist circumference (WC), lipid profile, A1C and albumin/creatinine ratio (ACR). **Results:** RBP4 and ROL were  $2.58 \pm 0.21$  and  $2.94 \pm 0.16$  nmol/ml in healthy subjects, slightly increased in obese non-diabetics ( $3.81 \pm 0.75$  and  $2.51 \pm 0.41$ ), and markedly increased in obese diabetics, both well ( $5.92 \pm 0.03$  and  $3.76 \pm 0.56$ ) and poorly controlled ( $5.59 \pm 0.22$  and  $4.28 \pm 0.58$ ). RBP4 and retinol correlated directly with BMI, WC, A1C, triglycerides and ACR and inversely with HDL. **Conclusions:** Serum levels of RBP4 and retinol are increased in obesity and insulin resistance and correlate with the traditional clinical markers for obesity and insulin resistance. These parameters shown potential as biological markers for obesity and diabetes.

## **Hunger on campus – Food insecurity, self-reported health, and dietary intake among post-secondary students accessing the University of Alberta Campus Food Bank**

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Food insecurity has been a focus of research among parents, immigrants, and individuals of low socioeconomic status. Food insecurity and its consequences among post-secondary students (PSS) have been understudied. Research is needed in this area because food insecurity may be related to poor health and well-being, or may cause poor diet choices, which may lead to poor health. **Objectives:** To describe the food security status, self-rated health and well-being, and diet of PSS who access the Campus Food Bank (CFB) at the University of Alberta. **Methods:** Cross-sectional data were collected from a convenience sample of PSS CFB clients March 2013–March 2014 through structured, face-to-face interviews on food security status, self-rated health and well-being, and dietary intake. Descriptive statistics were used to summarize variables. Data collection is ongoing. **Results:** To date, we have interviewed 60 participants; of these, 46.7% (n=28) were severely food insecure, 46.7% (n=28) were moderately food insecure, and 6.7% (n=4) were food secure. Self-reported health varied across the sample ('excellent': 1.7% [n=1]; 'very good': 23.3% [n=14]; 'good': 41.7% [n=25]; 'fair': 23.3% [n=14]; 'poor': 10.0% [n=6]). Most participants rated their lives as 'quite a bit stressful' (50%; n=30) or 'extremely stressful' (15%; n=9). No one met Health Canada's recommendation for daily vegetable and fruit intake ( $\geq 7$  servings). **Implications and Conclusions:** Preliminary data showed that the majority of PSS CFB clients (i)experienced substantial food insecurity, (ii)rated their health as good to fair, (iii)found their lives stressful, and, (iv)had sub-optimal intake of vegetables and fruit. The collection of additional data over the next month will allow us to more fully characterize the group of PSS who access the CFB.

## **Contrôle des glycémies intra-hospitalières des patients admis au Centre hospitalier universitaire Dr-Georges-L.-Dumont (CHUDGLD)**

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**Objectifs :** Les taux d'hypoglycémies et d'hyperglycémies avant et après l'implantation du protocole d'insulinothérapie ont été identifiés et analysés afin d'évaluer le contrôle des glycémies intra-hospitalières des patients admis au Centre hospitalier universitaire Dr-Georges-L.-Dumont. Les résultats ont été par la suite comparés à d'autres centres. Par ailleurs, les insulines prescrites lors d'hypoglycémies ont été analysées. **Méthodes :** Les données employées pour l'étude ont été recueillies de février 2012 à novembre 2013 à travers le rapport «Gluco-contrôle» du CHUDGLD ainsi qu'avec les protocoles d'insulinothérapie amassés. À des fins de comparaison, les données de la «Society Hospital Medicine» ont également été utilisées. 169 hypoglycémies ont été analysées lors de la collecte de données des protocoles d'insulinothérapie. **Résultats :** Le protocole d'insulinothérapie a amené une différence significative entre la pré-implantation et la post-implantation, et ce à deux différents niveaux. Le protocole d'insulinothérapie n'affecte pas significativement les hypoglycémies (P value 0.8), mais réussit à diminuer significativement les hyperglycémies (P value de 0.0001). L'insuline NPH est encore davantage utilisée comme insuline basale et la Lispro, comme insuline prandiale. En comparaison à d'autres milieux hospitaliers, le CHUDGLD se situe en-dessous de la médiane pour ses taux d'hyperglycémies et d'hypoglycémies, se démarquant dans ses bas taux d'hypoglycémies en prenant le 10<sup>e</sup> rang sur 77 établissements. **Conclusions :** Par le biais de cette recherche, il a été démontré que le protocole d'insulinothérapie est un outil efficace afin de contrôler les glycémies intra-hospitalières pour les patients admis au CHUDGLD. Après comparaisons, il a été également démontré que le CHUDGLD gérait plutôt bien ses glycémies intra-hospitalières. Enfin, à des fins d'améliorations pour les insulines prescrites, l'insuline Glargine ainsi que Détémir pourraient être ajoutées sur le protocole d'insulinothérapie et privilégier comme insulines basales compte tenu de leur profil d'action en forme de plateau, exempt de pics.

## **Nutrition-related characteristics of women with breast cancer admitted to the BCCA Centre for the North**

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**Objectives:** The purpose of this study was to describe the nutrition parameters with implications for cancer survivorship of women with breast cancer (WBC) admitted to the BC Cancer Agency Centre for the North (BCCA CN). **Methods:** A retrospective chart review of all (N = 92) WBC

admitted to the BCCA CN during the 2013 calendar year was performed. The following information was collected from electronic and paper charts: age, height, weight (initial, most recent), Nutrition Screening Tool (NST) score, treatment (intention, type), and referral to a Registered Dietitian (RD). **Results:** The majority of WBC referred to the BCCA CN were above 50 years of age (89.2%). Nearly all received treatment (98.9%) including surgery (93.5%), hormone therapy (70.7%), radiation therapy (53.3%), chemotherapy (35.9%), and/or targeted therapy (6.5%). Most women (91.3%) were treated adjuvantly. The majority (82.9%) of WBC were at low risk of malnutrition, whereas very few were at medium (15.9%) or high (1.2%) risk as identified by the NST. A minority (15.2%) of WBC were referred to see a RD. The majority of WBC were overweight (33.3%) or obese (40.9%) at the time of their new patient appointment. On average, WBC gained 0.1kg (SD=0.4) or 0.4% bodyweight (SD=0.5). At the time of their most recent weight there was an overall increase (4.9%) in the number of WBC above the healthy BMI range (38.2% overweight, 38.2% obese, total 76.4%). **Implications & Conclusions:** Consistent with the literature, the results of this study demonstrate that WBC are often above a healthy BMI range at diagnosis and gain weight post diagnosis. A minority of WBC are referred to a RD despite evidence that lifestyle and weight management interventions involving RDs can assist with weight loss and may improve breast cancer outcomes.

## **Determining the best practices and strategies to reduce the consumption of highly processed foods in adults aged 18 to 64: A review of the literature**

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Almost two-thirds (61.7%) of the Canadian diet contains highly processed foods. The consumption of these foods, combined with intake patterns that fall below recommended nutrient levels may lead to increased energy intake and an increased risk of developing chronic disease. **Objectives:** The purpose of this literature review is to determine best practices and strategies to reduce the consumption of highly processed foods in adults aged 18 to 64. This review of evidence is part of a more comprehensive situational assessment that will be conducted to inform the Simcoe Muskoka District Health Unit (SMDHU) Chronic Disease Prevention Healthy Lifestyle (CDPHL) Team program planning and service delivery as well as surveillance activities. **Methods:** Electronic database searches of MEDLINE, Embase and CINAHL were completed in January 2014. Key search terms included processed food, junk food, fast food, best practice, strategies, interventions, consumption, intake, and decrease. Articles meeting the inclusion criteria were reviewed using the SMDHU Data Extraction Tool which was adapted from the Dietitians of Canada PEN Appraisal Tool. **Results:** Ten articles met the inclusion criteria. Further results such as grading of evidence and determining best practices are pending. **Implications & Conclusions:** The SMDHU CDPHL Team will consider the results to determine programming initiatives for 2015 as well as the potential partners, stakeholders, and decision makers needed to explore the implementation of identified best practice strategies. The results will also identify potential areas of future research. Final conclusions are pending.

## How do Sudbury bariatric patients measure up?

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The Sudbury Bariatric Regional Assessment and Treatment Centre (SBRATC) was established in 2011 in an effort to manage obesity in Northern Ontario communities. **Objectives:** To define the demographic profile of the SBRATC patients and to determine how their weight loss compares to the literature. **Methods:** A retrospective chart review (n=41) was conducted to obtain patient demographics and weight loss at six months and one year following Roux-en-Y Gastric Bypass (RYGB) and Vertical Sleeve Gastrectomy (VSG) procedures from September 2012 to December 2013. A review of the literature was also completed to compare weight loss outcomes and bariatric population demographics. Patient data was analyzed using Pivot Tables in Excel<sup>®</sup> (2010). **Results:** The SBRATC patient sample consisted of 92.7% females (n=38) and 7.3% males (n=3) with an average age of 44.7 years. For each surgery, 85.4% underwent RYGB (n=35) and 14.6% underwent VSG (n=6). Mean percent excess weight loss (%EWL), percent total body weight loss (%BWL) and BMI for RYGB at six months post-op (n=30) was 54.1%, 25.3% and 35.8 kg/m<sup>2</sup> respectively, and at one year (n=20), 64.0%, 29.6%, and 33.5 kg/m<sup>2</sup> respectively. Mean %EWL, %BWL and BMI for VSG at six months post-op (n=6) was 48.1%, 25.7%, and 42.3 kg/m<sup>2</sup> respectively and at one year (n=3), 58.9%, 30.2%, 39.1 kg/m<sup>2</sup> respectively. **Implications & Conclusions:** The current sample size is too small for fair comparison. Both RYGB and VSG weight loss outcomes fall within the ranges of reported weight loss in the literature at both time points. The lack of standardized definitions for weight loss outcomes renders a difficult and likely imprecise comparison. Future research is needed once the SBRATC population has significantly grown.

## Indicators of malnutrition in the elderly population in an emergency room and short stay unit at a large teaching hospital

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Evidence has shown that 40% of the hospitalized elderly population (>65 years old) are either malnourished or at risk for malnutrition. Malnutrition can lead to increased hospital length of stay, morbidity and mortality, reduced functionality and quality of life<sup>1</sup>. An Elderly Friendly Initiative has been implemented at a large Quebec teaching hospital to provide optimal care for hospitalized elderly patients, and ensure their health and functionality are maintained. **Objective:** Identify variables associated with malnutrition in the elderly admitted to the hospital's Emergency Rooms and Short Stay Units (SSU). **Methods:** Thirty-four patients were screened and assessed for malnutrition using the Nestlé Mini Nutrition Assessment<sup>®</sup> form (MNA<sup>®</sup>) and anthropometric measures (weight, calf circumference, mid-arm circumference MAC and handgrip strength) over a 5-week period. **Results:** Though the average BMI was 23.6, 14.7% of patients were malnourished and 76.5% were at risk for malnutrition. About 47% consumed less

than 3 meals/day, 41.2% reported greater than 3 kg weight loss in the last 3 months and 70.6% believed they had no nutritional issues. Weight loss was significantly correlated with decreased appetite, consumption of less than 3 meals/day, lower BMI and increased risk of malnutrition. Greater calf circumference was correlated with unchanged appetite, greater BMI and greater MAC. Ability to feed self was correlated with adequate appetite, increased fluid intake and greater calf circumference. **Conclusion:** The elderly population at the large teaching hospital would benefit from a supplementation program initiated upon admission to the Emergency Room to help meet their protein and energy needs in order to maintain or improve their nutritional status. Elderly patients in SSU would benefit from nutrition evaluations by a registered dietitian because their average stay is currently greater than 3 days. <http://nutritioncareincanada.ca/files/CMTF-Brochure-Eng.pdf> Accessed March 28, 2014

### **Maternal, physical activity and socioeconomic factors that influence current weight in a sample of 9-10 year old Barbadian school children: a sub-study of the Barbados Children's Health and Nutrition Study**

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**Objectives:** To evaluate the impact of early childhood, maternal and socioeconomic factors on body weight status of 9-10 year old children, participants of the Barbados Children's Health and Nutrition Study (BCHNS). **Methods:** *Design:* A cross-sectional study. *Subjects:* A brief survey was completed via telephone calls to the parents of the 617 children that were involved in the BCHNS in Barbados elementary schools in 2010-2011. In a 4-week data collection, 77 parents were contacted and completed the questionnaire though some did not answer every question. **Results:** Children in the current study were similar to those from the larger study. There were no sex differences in the early childhood, maternal and socioeconomic measures. Mode of transport to school was the only variable that differed by weight status. Length of breast feeding and crowding were inversely related to BMI at age 9-10 years. In regression analysis, breastfeeding, crowding and maternal height were the only significant predictors of children's BMI. Most mothers correctly classified themselves as either normal weight or overweight while obese mothers tended to misclassify themselves as overweight, compared to weight status as defined by the International Obesity Task Force (IOTF). **Conclusions:** Breastfeeding, crowding and maternal height were associated with children's BMI at age 9-10 years, a pattern similar to industrialized countries. Future study is needed to determine whether the factors associated with early development of childhood overweight in Barbados are similar to those in the developed world.

## **Adult Parenteral Nutrition Practices of Dietitians in BC**

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**Objective:** To describe the role and common practices of registered dietitians (RDs) in British Columbia who provide care to adult patients receiving parenteral nutrition (PN) in an acute care setting. **Methods:** A self-administered, web-based survey consisting of 14 multiple choice questions was created. The survey was open to participants from February 17, 2014 to March 3, 2014. The survey questions prompted respondents to provide information on a wide range of topics, including: health authority; years of practice; principal work setting; frequency of PN involvement; role of the healthcare team; role of the dietitian; predictive energy formulas utilized; methods used to determine macronutrient requirements; type of PN solution utilized; and guidelines used to support practice. The results were compiled and analyzed using the VCH Survey Manager software and Microsoft Excel. **Results:** There were 71 respondents. The dietitian's role was found to be multifaceted, with the vast majority reporting involvement in several steps in the provision of PN. Across all work settings, kilocalories per kilogram was the most frequently used energy predicting formula for both obese and non-obese patients, while Harris-Benedict was the second most commonly used formula in both populations. The data indicated that pre-mixed solutions were more often utilized than customized solutions; however, several RDs reported to use both types of solutions at their facilities. Most dietitians reported to use greater than one guideline to support their PN practices. The most commonly reported guideline was ASPEN (93%), while many RDs also reported to use guidelines developed by their own facility (79%). **Implications and Conclusion:** The results indicated consistency in the roles and common PN practices of RDs in acute care settings across BC. The data obtained from this study will serve to further develop the Vancouver Acute Practice Guideline "Parenteral Nutrition: Role of the Dietitian."

## **Adventures in Cooking: A program evaluation plan**

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The TBDHU Adventures in Cooking (AIC) Program was created in 2005 to improve food skills of children aged 8-12 years in high risk populations. The North Bay Parry Sound District Health Unit (NBPSDHU) has also implemented AIC. **Objectives:** To draft an outcome evaluation plan that is feasible and valuable to program leaders and Public Health Unit staff to implement. **Methods:** Key informant interviews were informed by a literature appraisal of evaluations of food preparation/skills programs for children conducted by researchers in the North Bay area. Three program leaders were recruited and interviews were conducted using a standardized interview guide consisting of open-ended and closed-ended questions. Interviews were recorded,

then analysed, using an inductive and deductive approach. **Results:** All participants reported using the resources provided in the program manual; however, they reported making adaptations to the lessons based on the specific needs of their target population. Cooking and eating together were considered major benefits of the program as it developed teamwork and social skills. Participants highlighted the development of concrete skills including trying new foods, food safety and knife skills. All participants believed that having the child perspective during evaluation is appropriate and that a secondary evaluation with parental involvement is indicated. Child friendly questionnaires, implemented near the end of the program, were recommended as the best method to get feedback. **Implications & Conclusions:** Interview results and the literature appraisal will inform an outcome evaluation plan and the development and testing of a standardized evaluation tool to demonstrate program outcomes. This tool should be an informal child and parent survey that measures social, knowledge and food skill outcomes, pre- and post-program implementation.

## **Evaluating a children's food skills program: A review of the literature**

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**Objective:** To identify recently reported evaluations (including evaluation tools) of food preparation/skills programs for children ages eight to twelve years to inform an outcome evaluation plan for the *Adventures in Cooking!* Program. **Methods:** A search of six electronic databases (MEDLINE/Pubmed/NLM Gateway, CINAHL, Cochrane Library, and ERIC) revealed 19 relevant articles published between 2010 and 2013. Key search terms included: cooking skills and children, food preparation skills and children, cooking skills and families. Of the 19 articles, 12 met the inclusion criteria and were independently critiqued using the Dietitians of Canada PEN (Practice Evidence in Nutrition) Article Appraisal Form by two researchers in December 2013. Ontario Public Health Unit websites were also searched for relevant programs with personal communications conducted during November/December 2013. **Results:** Program evaluations included pre-post intervention questionnaires, focus group interviews, and combination of the two. Outcomes evaluated included attitudes towards the session and cooking in general, vegetable consumption, confidence asking for foods and ingredients at home, hand washing habits during food preparation, and confidence and motivation in choosing healthy food choices and acquiring food preparation skills. Two key themes were identified, prompting six recommendations including: 1) using various pre- and post-intervention evaluation strategies such as focus groups and questionnaires; and 2) ensuring questionnaires are short in length and at appropriate reading levels along with the use of visual aids (in the form of pictures or objects) for clarity. **Implications/Conclusions:** These results will inform the proposed evaluation plan. The published research highlights a level of community enthusiasm toward cooking programs; this could be built upon in future nutrition initiatives.

## **A fine blend; texture modification, Canada's Food Guide, and long-term care**

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**Objectives:** *Canada's Food Guide (CFG)* has been the standard for food group recommendations since 1942 and is the foundation for many institutions' foodservice guidelines. While *CFG* remains the standard for long-term care facilities guidelines, the usefulness when combined with texture modified diet orders is unclear. The purpose of this study was to determine the adequacy of texture modified menu offerings in minced and pureed form in relation to *CFG*. **Methods:** Menus were collected from 34 facilities across Nova Scotia (n=34) with 20 or more residents who offered texture modified diets and were reviewed using a tool developed by the principal investigator. The average offerings across facilities were analyzed using a non-parametric Sign test for both ground and pureed textures. **Results:** All menu offerings across both textures and all facilities were significantly different than the recommendations in *CFG*, and fruits and vegetables and grains food groups were significantly below the recommendations. **Implications & Conclusions:** These results show that texture modified diets frequently fall short of meeting the *CFG* recommendations. This is of significant concern as the elderly population in Canada is increasing quickly. Texture modified diets are becoming increasingly common and focus should be driven towards improving their palatability, energy and protein content, and consistency as food and nutrition play a role in quality of life, especially in long-term care dwelling seniors. Further evaluation of consumption versus meal offerings and nutrient analysis of menu offerings would present more insight into the nutritional status of seniors in institutionalized care.

## **Nutrition risk prevalence in a Northwestern Ontario hospital**

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Hospital malnutrition leads to increased risk of morbidity, length of stay, and mortality. At TBRHSC there is no formal nutrition risk screening and referral process to the Registered Dietitians (RDs). **Objectives:** Evaluate nutrition risk prevalence and the current RD referral processes upon admission. **Methods:** Research Assistants recruited participants, 72-hours after admission to the medical/oncology unit, over a 10-week period (November 2013-February 2014). Nutrition risk of consenting participants was determined using the Malnutrition Screening Tool (MST<sup>®</sup>). The unit RD also documented referrals for comparative analysis. Participant's age, sex, date admitted, admitting diagnosis, reason for referral and MST<sup>®</sup> scores were obtained. Moderate and high risk patients were offered nutrition supplements and RD referrals, respectively. Data was analyzed using pivot tables in Microsoft<sup>®</sup> Excel<sup>®</sup>. Ethics approval was obtained from TBRHSC and Lakehead University. **Results:** Sixty-seven of 69 recruited patients

(33 male, 34 female) consented with an average age of 64.7 years. Of the 67 participants, 55.2% (n=37) were moderate (n=27) or high risk (n=10) using MST<sup>®</sup>. Eight high risk patients accepted referrals to the RD. In total, the RD received 41 referrals; 13 (31.7%) were not addressed (discharged/ inappropriate). Of the 28 patients screened by the RD with MST<sup>®</sup>, nine (32.1%), four (14.3%), and 15 (53.6%) were at low, moderate, and high risk, respectively. Five (17.9%) low and moderate risk scores were considered high risk based on RD assessment. **Implications & Conclusions:** The nutrition risk prevalence was similar to other Canadian hospitals. Further research with a larger sample is needed to validate the MST<sup>®</sup> at TBRHSC and to assess feasibility of implementing a hospital-wide nutrition screening process.

## Dialysis adequacy calculations across Canada

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**Objective:** To determine the methods used for calculating dialysis adequacy (DA) in Canada to inform practices at the Algoma Regional Renal Program (ARRP). **Methods:** A 12-item online survey of open and closed-ended questions was created using Qualtrics<sup>®</sup> and pre-tested with five nephrology dietitians. The survey invitation and link was sent via email to the Canadian Association of Nephrology Dietitians (CAND) listserv (n=226) in February 2014. Two reminder emails were sent during the four week survey period. Quantitative data analysis including frequencies was conducted using Microsoft<sup>®</sup> Excel<sup>®</sup> (2010). **Results:** There were 67 responses (29.6% response rate) representing 42 of 115 clinics in Canada (36.5%); seven sites had multiple responders (2-4/site). Two-thirds of respondents were from Ontario (n= 31, 46.3%) and Quebec (n=15, 22.4%) with no representation from Prince Edward Island, Northwest Territories, Yukon, and Nunavut. The majority of respondents provided hemodialysis (n=63, 94.0%); 43 of 52 have more than 60 patients (82.7%). Of the 60 responses to calculating DA and frequency, 26 (43.3%) reported monthly, 16 (26.7%) every run, 7 (11.7%) quarterly, and 10 (16.7%) at different frequencies. Of the 67 responses to the question of who is responsible for these calculations, 9 (13.4%) stated the dietitian, 22 (32.8%) the nurse, 13 (19.4%) the doctor, and 23 (34.3%) stated “other”. Multiple calculation methods were reported (n=70 responses) including the hemodialysis machine (n=21, 30.0%) and Urea Reduction Ratio (URR) (n=25, 35.6%). Twenty of 61 respondents (32.8%) used URR for program reporting. **Implications & Conclusions:** A larger sample representing diverse sites across Canada is needed but these results provide valuable information to inform the ARRP and future discussions regarding DA calculations, feasibility and implementation.

## How do male university students use food labels?

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**Objectives:** The purpose of this study was to explore how male university students use food labels to make decisions about their diet. **Methods:** A descriptive qualitative approach guided the data collection through focus groups and individual interviews. An interview guide was developed by the researcher. Thirteen male students from the University of Prince Edward Island, who were between the ages of 18 and 31 took part in this study. Data derived from the focus groups and individual interviews were transcribed verbatim and analyzed for common themes. **Results:** Results indicate that male university students know that food labels are a tool used for comparing two food products as well as a source of nutrition information available at the point of purchase. The male university students in this study indicated that they use food labels as a means of avoiding ‘bad stuff’ in their diet, which they defined as fat, calories, carbohydrates, and sodium. Generally, study participants had difficulty understanding the percent daily value feature of the food label and also struggled to interpret the listed serving size. **Implications & Conclusions:** Future nutrition research should continue to concentrate on males’ use of food labels, specifically targeting those who do not use food labels to make decisions about their diets to determine how the results would compare to those of the current study. These findings can assist dietitians in tailoring nutrition education strategies for food labels to better assist Canadians in making healthier food choices.

## **Impact of the Community Food Action Initiative on community capacity in Interior Health**

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This study used the Community Capacity Building Tool (CCBT) to evaluate the level of community capacity within communities participating in the Community Food Action Initiative (CFAI) program between 2010-2016. **Objectives:** To collaboratively complete the CCBT with CFAI project participants from funded communities around Interior Health (IH), in order to determine their current level of community capacity and to establish baseline data for future comparison and evaluation. **Methods:** All eight CFAI-funded communities from 2010-2016 were invited to partake in the study. Participants from six communities consented to be interviewed within their community group. The CCBT was completed by consensus from participants for each capacity building criteria. The data was recorded, and qualitative analysis was conducted to identify key themes. **Results:** The CFAI grant writing process required communities to seek out expertise within internal and external networks in order to create a strong application. As a result, the development of community capacity had begun prior to receiving funding from the CFAI. The projects require diverse involvement, funding and communication approaches to get started and be sustainable. Another finding noted that further involvement and support of “outside organizations” is required prior to the end of the CFAI funding period for sustainability of projects. All of the communities feel that their projects have helped or will help develop a stronger sense of community via education, community and government involvement, funding, networking and information sharing. Common barriers to

project development and implementation include economic and environmental factors.

**Implications & Conclusions:** Participating communities have been able to critically evaluate their projects, identifying areas for further development that will support them to continue to build community capacity and ensure the sustainability of their efforts. With the help of CFAI funding, communities have the potential to continually increase community capacity related to food security.

## **Comparing Fraser Health customized residential care menus to the Recommended Dietary Allowance values**

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**Objectives:** Fraser Health (FH) has standardized residential care (RC) menus that align with Canada's Food Guide for Health Eating. It is unknown if the customization of these menus for resident preferences compromises their nutritional content. This study undertook to determine the nutritional adequacy of customized menus with respect to the Recommended Dietary Allowances (RDA) for protein, vitamin B12, vitamin D, and calcium. **Methods:** The 28 day customized menus of 223 older adults living in RC were analyzed using a computerized software program (CBORD<sup>®</sup>). The data were analyzed using Excel and SPSS. Descriptive statistics were used to describe resident menus that met the RDA by nutrient, diet type, and texture. **Results:** The proportion of resident menus meeting the RDA for protein, vitamin B12, vitamin D and calcium was 98.7% (n=220), 89.2% (n=199), 0.5% (n=1) and 25.8% (n=58), respectively. For those on a Nutrient Dense, Dysphagia, Diabetic and General diet, the proportion that met the RDA for calcium was 73.7% (n=14), 26.3% (n=5), 20.0% (n=5) and 17.1% (n=21), respectively. Over 73.7% of menus met the RDA for protein and vitamin B12 regardless of texture (Regular, Cut-up, Easy-to-Chew, Minced or Pureed). Few of the Regular, Cut-up and Easy-to-Chew menus met the Calcium RDA (21.4%, 16.7% and 20.5%, respectively). The number of menus meeting the RDA for calcium was higher for those on a minced and pureed texture (42.9% and 47.4%, respectively). **Implications & Conclusions:** The majority of customized FHRC menus do not meet the RDA for vitamin D and calcium. The higher proportion of menus meeting the RDA for calcium in the Nutrient Dense, Minced and Pureed diet types may be due to the higher dairy content of these diets. These findings may help dietitians justify the need for micronutrient supplementation in this population.

## **Food fortification practices in BC residential care facilities**

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**Objectives:** To describe food fortification practices in residential care (RC) facilities in British Columbia (BC) including goals of fortification, common fortifiers, and menu items being fortified. **Methods:** An 11-question online survey (Vovici©) was designed, pilot tested and administered. The survey was distributed via three listservs commonly used by BC RC food service management (dietitians, food service directors, and Canadian Society of Nutrition Management, food service, production managers). Participants were asked to complete one survey per facility. Results were quantitatively analyzed using Microsoft® Excel® 2007. **Results:** 40 BC RC facilities responded to the survey (18% response rate). 38 facilities (95%) reported using food fortification practices. Food fortification was primarily used to increase protein (82.5%), calories (70%), and fibre (65%). The most commonly reported fortifiers were protein in the form of protein powder or skim milk powder (75%), soluble and insoluble fibre supplements (60%), and full fat dairy (42.5%). Food items most commonly fortified were hot cereals (87.5%), soups (62.5%), and puddings (42.5%). Eight facilities (20%) reported novel fortification strategies, including the addition of whole foods such as meat, legumes, and vegetables into menu items. **Implications & Conclusions:** The majority of facilities follow common fortification practices to increase the macronutrient and fibre content of meals. This result is supported by the literature, in which macronutrient fortification has been shown to increase energy and protein intake and fibre fortification has been shown to decrease laxative use. Other sites are using innovative food fortification strategies. Some of these include using whole foods for fortification. More research is needed to determine whether using whole foods to fortify menu items increases intake of macro- and micronutrients and improves residents' acceptance of menu items.

## **Does the consumption of red meat and soy products affect the risk of recurrent stroke?**

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**Objective:** To provide evidence-based answers to the following PICO questions for the 'Stroke' Knowledge Pathway in the PEN® (Practice-based Evidence in Nutrition) database used by dietetic professionals in Canada, United Kingdom, Australia, and New Zealand. Questions: 1) Does red meat consumption increase the risk of recurrent stroke in adults? 2) Does soy have a protective affect against secondary stroke in adults? **Methods:** A literature search was conducted with combinations of keywords; stroke, secondary, recurrent, dietary proteins, red meat, and soy. No evidence was found to support recurrent stroke risk reduction at the food group level, thus literature supporting primary stroke prevention was critiqued to assess the association between red meat, soy, and risk of stroke. Articles were filtered for human studies conducted in the last 14 years (2000-2014) focusing on stroke risk at the food group level. Two meta-analyses and six corresponding prospective cohort studies were evaluated and graded to provide Key Practice Points and Evidence Statements according to PEN® writing guidelines. **Results:** The relationship

between red meat consumption and development of secondary stroke still needs validation. Risk of primary stroke was shown to increase with each 100g of red meat consumed (13% RR increase), 100g of total meat consumed (10% RR increase), and 50g of processed meat consumed (11% RR increase). There is limited evidence on the protective effect of soy; two studies conducted in Asian populations produced results with limited power that cannot be extrapolated to Western populations. **Implications and conclusions:** Expert opinion and a growing body of evidence suggests that diet modification is an essential component for reducing risk of primary and secondary stroke. While RCT's usually provide quality evidence for nutrition interventions due to the nature of adverse effects of high intake of red and processed meat, such a trial would not be ethical.

## **Role of nutrient delivery in peripheral tissue health**

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**Objective:** The objective of this study was to provide a link between nutrition and vascular physiology. **Methods/Process:** A literature review focusing on vascular physiology was conducted while applying the concepts of nutrition. The purpose of the literature review was to gain a deeper understanding of how blood flow is regulated in the body. For the purpose of this project, we focused on blood flow to the peripheral nerves. **Results:** The field of nutrition focuses on optimizing nutrient intake to meet the demands of the body. Once ingested, these nutrients enter the blood stream and are distributed throughout the body via the blood stream to be absorbed by the tissues. Therefore, in order to understand nutrient delivery, we also need to understand blood flow delivery. Regulation of blood flow at the peripheral nerves is a complex process and is influenced by a number of vasoactive substances, as well as physiological factors, such as arterial pressure. A number of techniques have been employed to study blood flow at the peripheral nerves and the two most common ones are hydrogen clearance and laser Doppler technique. However, each of these techniques has its limitations and the mechanisms which regulate blood flow, and hence nutrient delivery, remain to be elucidated. **Implications & conclusions:** In order to provide the body with adequate nutrition, we need to focus not only on the nutrients we put into the body but also on how these nutrients are distributed within the body. Both, the ingestion and distribution of nutrients via the blood stream are necessary in providing the body with proper nutrition to optimize body functions. Therefore, the fields of nutrition and vascular physiology both focus on the same idea of providing the body with adequate nutrition.

## **Assessing the Sustainability of Manitoba School Breakfast Program: A Qualitative Approach**

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Schools have been identified as an environment in which child nutrition can be readily influenced. School breakfast programs (SBP) are programs that offer students a free nutritious

breakfast at the start of their school day. These programs have been found to have many positive impacts on child nutrition, academic performance and school climate. Though much research has been done examining the affects of SBP, little has been done looking at the policy environment, which in turns affects the sustainability of these programs. **Objective:**The objective of this research is to assess key informant’s perceptions on the sustainability of SBP and to identify any factors that may threaten these programs. The purpose of this study is to assess long-term sustainability of Manitoba SBP by examining the beliefs, attitudes and values of the diverse people needed in ensuring that SBP run, including but not limited to: government personnel, funders, superintendents, school principals and SBP program coordinators. **Methods:** A qualitative approach will be used to study the sustainability of SBP. Semi-structure interviews using open-ended questions will be conducted with all key informants. This study will help to provide further insight on policies and practices that determine the resources made available for SBP. Data collected from this study will provide an in-depth examination of the policy environment and sustainability of schools breakfast programs. **Results:** Participants talked about “the value and the need of SBP for everybody”. They discussed the challenges SBP face and developed innovative and creative ways in overcoming the challenges. The themes derived from the interviews, were used to develop a conceptual framework for understanding SBP. **Implications and Conclusions:** Data collected in this study provides an in-depth examination of the policy environment that influences sustainability of school breakfast programs. It adds to the literature by proposing a conceptual framework that puts school breakfast programs into a larger policy context.

### **What do dietitians think they know about food companies? How do they use this knowledge and does it influence their practice?**

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**Objectives:** The purpose of this study was to assess the perceived knowledge Registered Dietitians have on food company operations. It further determined the importance dietitians place on being knowledgeable about food company operations and how dietitians see the use of this information in dietetic practice. **Methods:** A sixteen question electronic survey was developed using an online survey tool called FluidSurveys. The survey was emailed to approximately 280 Registered Dietitians in Saskatchewan. After one week, a reminder link was sent to the participants. The survey was open to participants for ten days. **Results:** The survey resulted in a response rate of 41.4%. Majority of dietitians have no knowledge to some knowledge on food company operations. Most dietitians (97%) view food company operation information as being very important to somewhat important to the dietetic profession. Dietitians mainly use information on food company operations to answer questions from clients/patients (81%), but also incorporate this information in a variety of others ways. **Implications & Conclusions:** This study demonstrated the perceived knowledge dietitians have on food company operations, but also revealed the need for additional and comprehensive education on food company operations for dietitians. Most dietitians place importance on having knowledge of food company operations, but there may be a lack of available and reliable sources of

information regarding food company operations. Dietitians use food company information in various ways in practice and further education in this area could be of significance to dietetic practice. This study provided a baseline for future research exploring food company operations and the dietetic profession.

## **What is the evidence to support reducing dietary saturated fat intake to <7% of energy for stroke prevention?**

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**Objective:** To contribute to the development of a Stroke Knowledge Pathway in PEN<sup>®</sup> (Practice-Based Evidence in Nutrition) international database by answering a question related to saturated fat intake and secondary stroke prevention in adults with dyslipidemia. **Methods:** A comprehensive literature search was conducted, including only articles published from 2008-2014 using adult human populations. Eight relevant articles were critiqued and graded and summarized into Key Practice Points (KPP) and Evidence Statements according to the PEN<sup>®</sup> writing guidelines. **Results:** It is commonly recommend that saturated fat should <7% of total energy intake for individuals at high risk for heart disease and stroke. Though reduction in saturated fat consumption is strongly correlated with reduction of serum LDL cholesterol, the evidence linking dyslipidemia with stroke incidence is uncertain. There is a gap in the literature exploring the relationship between stroke and dyslipidemia, as studies of stroke risk tended to recruit mostly individuals with no history of heart disease or stroke. As a result, the original research question cannot be answered at present. A secondary question was posed related to reduction of saturated fat intake for total stroke prevention in adult populations. The evidence suggests that saturated fat consumption and stroke risk depend on the type of stroke being studied (hemorrhagic or ischemic), though several studies found no correlation between saturated fat consumption and stroke risk after adjusting for age and other stroke risk factors. Some studies suggest that the ratio of unsaturated fat intake to total fat intake may be more important than the amount of saturated or total fat consumed when considering stroke risk and impact on serum lipids. **Implications and Conclusions:** Further research is needed to determine the impact of saturated fat consumption on stroke risk or secondary stroke incidence.

## **Dietitians' perceptions and attitudes regarding their role in the assessment of household food insecurity in Alberta**

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**Objectives:** To explore and understand the perceptions of dietitians regarding their role in the assessment of household food insecurity. **Methods:** This qualitative study employed a grounded theory (GT) approach for data gathering and data analysis. Four initial focus group interviews included 18 dietitians from different practice areas: community/public health, chronic disease, home care, general clinical nutrition and pediatrics. As theory emerged, theoretical sampling was used to recruit key informants from different regions of Alberta for two individual and three paired-interviews. All interviews were digitally recorded and transcribed verbatim. Data were analyzed using open, axial, and selective coding according to GT methodology. **Results:** The findings from 26 dietitians revealed they perceived diverse challenges in addressing food insecurity with clients. At the centre of the theoretical framework was the *complexity in addressing food insecurity*. Other major categories branching out from the core included: *perception of role, involvement in advocacy actions, developing skills, continuing education and training, availability of information and resources, support from health system and source of occupational stress*. The complexity of addressing food insecurity was grounded in individual, community and organizational level barriers in screening and supporting clients. Feelings of constant discomfort, helplessness and inadequacy were addressed as underlying issues by participants. Advocating for food security issues was perceived as an informal part of participants' job meanwhile few emphasized being involved in advocacy actions. These results highlighted the need for appropriate skills, training and resources for screening and discussing food insecurity with clients. **Implications and conclusions:** This study provided dietitians the opportunity to voice the challenges faced in addressing household food insecurity in practice. These findings will help guide, prepare and support dietitians in different settings to incorporate food insecurity in routine nutritional assessments.

## **Does the restriction of dietary cholesterol from egg sources lead to an increase in primary and secondary stroke prevention in healthy adults?**

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**Objective:** To contribute to the Stroke Knowledge Pathway in the PEN: Practice-Based Evidence in Nutrition<sup>®</sup> international database by answering a question related to the relationship between egg consumption and stroke risk. **Methods:** A comprehensive literature search was conducted using PubMed, EMBASE and MEDLINE databases. The literature search was completed using specific search terms: egg consumption, stroke, primary prevention and secondary prevention. Only human based studies with healthy adult populations were included in this review. Studies that focused on cardiovascular disease (CVD) were reviewed if there was an emphasis on stroke and or stroke mortality. Eight studies were critiqued and the strength of the evidence was graded according to the PEN<sup>®</sup> grading guidelines. **Results:** Eight studies were reviewed and included: two systematic reviews, one meta-analysis and two prospective cohort studies. The evidence suggests that there is no significant relationship between egg consumption

and primary stroke risk. In addition there is no dose-related relationship between egg consumption and stroke risk when comparing a low dose ( $\leq 1$  egg/ week) to a high dose ( $\geq 7$  eggs/ week). The reviewed research demonstrated no significant relationship between egg consumption and stroke in adults with diabetes mellitus. There were limited studies on egg consumption and secondary stroke prevention therefore this relationship could not be fully examined. **Implications and Conclusions:** The relationship between egg consumption and primary stroke risk in healthy adults and in adults with diabetes mellitus is not significant. Further research is required to determine the relationship between egg consumption and secondary stroke.

## **Nutrition implications for hip fracture patients**

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**Objectives:** Saskatoon Health Region (SHR) does not currently follow a nutrition care plan for patients undergoing hip fracture surgery. Previous research has identified the benefits of adequate nutrition pre and post-operatively including; shorter hospital stay, reduced risk of infection, and lower rates of mortality. The purpose of study was to establish evidenced based, best practice nutrition intervention guidelines for surgical hip fracture patients. **Methods:** Two data collection tools were created to gather information regarding nutrition interventions from practicing clinical dietitians and existing surgical hip fracture guidelines. Nine clinical dietitians practicing on orthopedic wards across Canada participated in phone interviews. The nutrition intervention portions of four surgical hip fracture guidelines were reviewed. **Results:** Analysis of the collected data indicates the importance of nutritional screening and assessment, as each hip fracture patient may benefit from individualized nutrition care. However, nutrition guidelines that can be generalized to most hip fracture patients may be valuable in addressing the needs of this patient population. These guidelines include; a calcium supplement of 1000 – 1500 mg per day, a vitamin D supplement of 800 – 1000 IU per day, use of high protein/high calorie supplements for greater than 2 months post-operatively. **Implications and Conclusions:** These guidelines, along with other recommendations, will be integrated into a nutrition pathway for hip fracture patients within SHR.

## **A preliminary investigation of food insecurity among students with children**

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**Introduction:** In Canada 15.6% of households with children are at risk for food insecurity compared to 11.4% of households without children. Post-secondary students with children may

be particularly vulnerable for food insecurity. **Objectives:** The purpose of this qualitative study was to explore food insecurity among a purposive sample of post-secondary students with children who had received emergency food hampers from the Campus Food Bank (CFB) at the University of Alberta during the 2013-2014 academic year. To explore (1) reasons for using the CFB, (2) the impact of the CFB on quality of life, (3) the impact of food insecurity on academic achievement, (4) food related behaviours (5) coping strategies to deal with food insecurity, and (6) challenges to achieving food security related to having children while attending university. **Methods:** Data was collected using semi-structured face-to-face interviews. Interviews were digitally recorded and transcribed verbatim. Transcripts underwent content analysis. Analysis is ongoing and will continue until all relevant themes and sub-themes have been identified in the transcripts. **Preliminary Results:** Nine participants (n=4 women, n=5 men) were interviewed and preliminary analysis completed. Upon review of these transcripts, several themes related to food insecurity were found, including financial crisis, inappropriate foods, time management, and negative academic outcomes. Students protected their children from food insecurity by preferentially giving them food. Coping strategies used to deal with food insecurity included borrowing money, lowering food quality and utilizing additional emergency food resources. **Implications & Conclusion:** Post-secondary students with children may be at risk of nutritional inadequacies and poor academic performance due to financial crisis, consuming lower quality foods and going hungry to protect their children from hunger. By reporting the reasons for food insecurity among students, it is anticipated that policymakers will be enabled to make more appropriate decisions regarding postsecondary student funding.

## **A descriptive study of patients with head and neck cancer receiving concurrent chemoradiation treatment at BC Cancer Agency- Vancouver Centre (BCCA-VC).**

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**Objectives:** To describe the nutritional concerns experienced by all patients with head and neck cancer receiving concurrent chemoradiation at BCCA-VC in 2013. **Methods:** A retrospective chart review was conducted using the Cancer Agency Information System (CAIS) and the Outcomes and Surveillance Information System (OaSIS) electronic databases. Data were collected on n=81 patients and analyzed using frequency distributions at four time points: initial screening (T0), first dietitian consult (T1), treatment conclusion (T2) and 4-6 weeks post-treatment (T3, acute recovery). **Results:** Most patients (82%) were  $\geq 50$  years of age, and 85% were male. Demographic information revealed the following patient risk factors: prior alcohol use (80%), smoking history (72%), human papilloma virus infection (38%) and Epstein-Barr virus infection (5%). Complete Nutrition Screening Tools (NSTs) were available for 78% of patients, identifying 56% as low risk, 35% as medium risk, and 10% as high risk of malnutrition. The most frequently reported symptoms throughout treatment and recovery were altered taste, odynophagia, dysphagia, xerostomia, and reduced appetite. While a regular diet was most common at T1, a liquid diet and a dental soft/minced diet were most common at T2 and T3 respectively. Nutritional supplement use increased from 41% to 83% between T1 and T2, and decreased to 53% by T3. Ten patients required enteral nutrition support. Complete weight

data were available on n=69 patients. Of these, 90% lost weight by T2 with an average weight loss of 9% and almost all (98%) continued to lose weight at T3 (x=12%). **Implications & Conclusions:** The results of this study support the need for ongoing nutrition screening and intervention for this patient population, despite initially low NST scores. A comprehensive approach to patient care in the post-treatment period is warranted as weight loss and symptoms persist several weeks after treatment conclusion.

## **Effects of Omega 3 fatty acid from dietary sources and supplementation on stroke prevention**

*A Docherty<sup>1</sup>, K Cohen<sup>2</sup>, <sup>1</sup> University Health Network Dietetic Internship, <sup>2</sup>University Health Network, Toronto Western Hospital, Toronto, Ontario*

**Objective:** To contribute to the development of a Stroke Knowledge Pathway in the PEN: Practice-Based Evidence in Nutrition® international database by answering a question related to the relationships between omega 3 fatty acids from marine dietary sources, plant sources and fish oil supplementation and primary and secondary stroke prevention. **Methods:** A literature search was conducted using PubMed and MEDLINE databases using the search terms: omega 3, EPA, DHA,  $\alpha$ -Linolenic acid, marine dietary sources, dietary supplement, plant sources, stroke, primary prevention, secondary prevention. Nine relevant articles were critically appraised and summarized into key practice points (KPP) and supporting evidence statements according to the PEN® writing guidelines. **Results:** Two systematic reviews with meta-analyses of prospective cohort studies identified a relationship between consumption of at least one serving of fish per week and reduced primary stroke risk. Type and preparation method of fish may also be a factor in reducing risk. Four systematic reviews with meta-analyses did not identify a significant relationship between fish oil supplements and primary or secondary stroke prevention. There is a trend, although not significant, towards increased risk of hemorrhagic, more than ischemic, stroke with consumption of fish oil supplements compared to a placebo. The amount of omega 3 supplementation varied from 0.27g – 6g/day. There is limited evidence to show the effect of plant sources of omega 3 ( $\alpha$ -Linolenic acid) on stroke. One meta-analysis showed a slight increase in risk with consumption of 1.07-1.6g/day. **Conclusion and Implications:** It was hypothesized that other nutrients in marine dietary sources of omega 3 may also contribute to the relationship between its consumption and decreased stroke risk. Further studies are needed to determine the amount of fish to recommend. Further studies are also needed to identify a significant relationship between fish oil supplements and plant sources of omega 3, and stroke risk.

## **Characteristics of adults on home enteral nutrition who return to a Fraser Health facility**

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**Background:** To date in Canada, there is inadequate research examining home enteral nutrition (HEN) and lack of data within Fraser Health (FH) regarding returns to FH facilities for tube- or nutrition-related complications. **Objectives:** The objectives of this study were to describe the demographic and clinical characteristics of adult patients on HEN who returned to a FH facility and analyze the proportion of returns for tube- or nutrition-related complications. **Methods:** A retrospective chart review was conducted on adult patients discharged on HEN who returned to a FH facility between April 1, 2010 and March 31, 2012. The Electronic Medical Record (EMR) was reviewed to obtain information such as age, frequency of returns to a FH facility, reasons for returns, and whether patients were seen by a Registered Dietitian (RD) during their return visit. The data was analyzed using Excel and descriptive statistics were conducted. **Results:** A total of 33 patients were included in the study. Among the 33 study patients, there were 132 returns to a FH facility during the study period. Of these returns, 36% (n=48) involved tube- or nutrition-related complications. The mean age of patients was 65 years (SD 13, range 31-90). Patients who returned to a FH facility for tube- or nutrition-related complications did so an average of 4 times (SD 2, range 1-9) during the study period. The most common tube- or nutrition-related complication was aspiration pneumonia (n=10, 21%). Other common HEN-related complications included tube migration (n=8, 17%), occlusion (n=6, 13%), and fluid/electrolyte imbalance (n=5, 10%). Nineteen of the 48 tube- or nutrition-related returns involved a RD assessment. **Implications & Conclusions:** These findings provide a description of adult HEN patients in FH and returns to FH facilities for tube- or nutrition-related complications. This baseline data can be used to inform key stakeholders regarding healthcare resources used to support HEN patients and the potential impact of limited home care RD resources.

## **Does following the DASH diet or the Mediterranean diet vs. a regular diet reduce the incidence of primary stroke in adults with no history of chronic disease?**

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**Objective:** To contribute to the development of a Stroke Knowledge Pathway in PEN: Practice-Based Evidence in Nutrition® international database by answering a question related to the Dietary Approaches to Stop Hypertension (DASH) or Mediterranean diet and stroke prevention. **Methods:** A comprehensive literature search was conducted using MEDLINE, PUBMED, CINAHL, ProQuest Nursing, Allied Health Source, Cochrane central register of controlled trials, Cochrane Database of Systemic reviews and TRIP database. Specific search key words included: stroke, hypertension, DASH diet, Mediterranean diet, regular diet and adult. Articles reviewed were published between 2008-2013. Eight relevant articles were critiqued and graded according to the PEN® writing guidelines and summarized into Key Practice Points (KPP) and Evidence Statements. **Results:** There is fair evidence from four cohort and case control studies that

adhering to the DASH diet from 8.2-24 years is associated with lower risk of developing stroke in adults with no history of cardiovascular disease (CVD), cancer and diabetes. It is also associated with lower risk of stroke in adults with hypertension. Other studies showed fair evidence that adhering to the Mediterranean diet from 1-20 years is also associated with lower risk of developing stroke in adults with no previous Coronary Heart Disease (CHD), CVD, stroke, diabetes, neoplastic or chronic inflammatory disease. **Implications and conclusions:** Currently, the DASH diet and Mediterranean diet can be recommended for prevention of primary stroke in adults with no history of chronic disease. Further studies (randomized control trials) are necessary to measure the clinical significance of the association between the DASH and Mediterranean diet and incidence of primary stroke.

## **Consommation de légumes et fruits chez des enfants en situation minoritaire vivant à Ottawa: résultats préliminaires.**

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**Objectif:** Décrire la consommation de légumes et de fruits chez les enfants entre 6 à 12 ans d'origine africaine et caribéenne (francophones et anglophones), ainsi que les enfants du même âge francophones non-immigrants. **Méthodologie:** L'étude est une enquête transversale avec une méthodologie mixte en cours à Ottawa (partie ontarienne). Les enfants (6 à 12 ans) ont été classés selon le lieu de naissance de la mère et la langue officielle parlée le plus souvent à la maison. Les résultats préliminaires se basent sur des données recueillies auprès de 20 enfants entre janvier et février 2014. Le nombre de portions de légumes et fruits consommé par les enfants a été estimé avec un rappel de 24 heures et a été comparé aux recommandations du Guide alimentaire Canadien (GAC). **Résultats:** La plupart des enfants ne rencontraient pas la recommandation du GAC pour les légumes et fruits avec une consommation moyenne de 3,5 portions pour les enfants africains et caribéens (anglophones et francophones) et 3,9 portions pour les Canadiens francophones. Seulement 15 % des enfants comblaient la recommandation alors que 30 % des enfants comblaient moins que le quart de la recommandation. **Implications & Conclusions:** La consommation de légumes et fruits, un marqueur souvent utilisé pour évaluer la qualité des habitudes alimentaires, suggère que l'alimentation des enfants en situation minoritaire à Ottawa est préoccupante. À terme, cette étude contribuera à identifier les barrières et facilitateurs spécifiques influençant l'alimentation des enfants d'âge scolaire vivant en minorité (linguistique et/ou visible) à Ottawa. Ces résultats seront utilisés comme point de départ pour la mise en place de programmes adaptés d'éducation sur les saines habitudes alimentaires visant à aider ces enfants et leurs parents à faire de bons choix alimentaires pour leur santé présente et future. Projet financé par le CNFS - volet Université d'Ottawa.

**A description of characteristics of in-center hemodialysis patients at St. Paul's Hospital**  
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Providence Health Care, Vancouver, BC.

**Objectives:** The purpose of this study was to collect demographic data and nutrition-related laboratory values of patients receiving in-center hemodialysis (HD) at St. Paul's Hospital (SPH) and to examine relationships between these variables. **Methods:** A retrospective chart review was conducted on patients receiving in-centre HD at SPH for a minimum of 6 months, whose charts contained 3 consecutive sets of blood work between October 2013 to January 2014. Information was gathered from the Provincial Renal Outcome Management Information System (PROMIS) database. Patient demographics examined were age, sex and ethnicity. Laboratory values of interest were serum calcium, albumin, potassium and phosphorus. Patients were categorized into one of 5 groups based on their ethnicity as per PROMIS (Caucasian, Filipino, Asian Oriental, East Indian, and Other). Statistics including means, standard deviations, ranges and correlational scatterplots were used to summarize data. **Results:** A total of 191 charts were reviewed, of which 137 met the inclusion criteria. The proportions of ethnicities were Asian Oriental (45.3%), Caucasian (32.1%), Other (8.8%), East Indian (8.0%) and Filipino (5.8%). The mean age within each ethnicity did not differ significantly in Asian Oriental ( $76.2 \pm 10.36$ ), Caucasian ( $70.3 \pm 14.23$ ), East Indian ( $70.8 \pm 12.45$ ), Filipino ( $67.3 \pm 9.82$ ), and Other ethnicities ( $58 \pm 21.6$ ). There were no statistically significant differences in mean laboratory values between ethnicities or sex, nor was there a linear relationship between laboratory values and age. There were considerable differences in phosphorus, potassium and albumin values in the Other group compared to the four separate ethnicities, though the small sample size did not yield statistically significant results. **Implications & Conclusions:** These findings summarize the demographics of the in-centre HD population at SPH. This baseline data can be used to prompt more in-depth research between various hemodialysis units across BC to better tailor renal nutrition education in these populations.

### **The relation between substantial weight loss and decreasing the risk of developing type 2 diabetes in rural adults participating in a 6-month healthy lifestyle prediabetes education program**

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**Objectives:** To determine if rural adults with prediabetes who lose 5% to 10% of their weight will significantly reduce their blood sugar and lipid profiles at the end of the 6-month education program. **Methods:** Fifty rural adults diagnosed with prediabetes were referred by their physician to participate in the STAR Family Health Team's prediabetes education program. At baseline and after a program of 6 monthly education sessions, fasting blood glucose (FBG), blood glycosylated hemoglobin (A1c), 75g oral glucose tolerance test (OGTT), and blood triglycerides (TG) and total cholesterol (TC) concentrations were measured. **Results:** At the end of the 6-month program, clients were divided into 3 groups: those who had a substantial weight loss (n=14), those who lost a non-substantial (<5%) amount of weight (n=20) and those who had no weight loss or gained weight (n=16) from pre to post program. Participants who had lost a

substantial amount of weight (5% - 10%) had significant reductions ( $P < 0.05$ ) from baseline to post program for FBG concentrations ( $6.3 \pm 0.7$  mmol/L vs  $5.7 \pm 0.4$  mmol/L), A1c ( $6.0 \pm 0.3\%$  vs  $5.7 \pm 0.3\%$ ), blood TG concentrations ( $1.9 \pm 1.0$  mmol/L vs  $1.5 \pm 0.8$  mmol/L) and blood TC concentrations ( $4.0 \pm 0.6$  mmol/L vs  $3.4 \pm 0.6$  mmol/L). Therefore, a substantial weight loss as part of a 6-month prediabetes education program may have helped decrease the risk of type 2 diabetes (T2DM), since post program, clients who had lost a substantial amount of weight had significantly improved blood glucose and lipid concentrations. **Implications & Conclusions:** Our preliminary results are consistent with those of other studies and suggest that a significant amount of weight loss, in rural adults with prediabetes participating in the STAR Family Health Team prediabetes education program, is related to a decreased risk of T2DM and an improvement of blood lipid profile. Funding received from the Public Health Agency of Canada: Canadian Diabetes Strategy.

## **PREPARE: A pre-diabetes lifestyle intervention utilizing constructs of the social cognitive theory to facilitate behaviour change**

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PREPARE is a community-based six-session lifestyle intervention for adults with pre-diabetes. **Objective:** To assess differences in participants Social Cognitive Theory construct scores at baseline, mid-program, and post-program. **Methods:** A Lifestyle Beliefs Questionnaire was developed to evaluate participants' outcome expectations and coping self-efficacy (CSE). **Results:** There were 92 participants at the first education session of which 51 completed post-program data collection; however, only 24-38 participants (depending on the survey question) had complete data at baseline, mid-program, and post-program. At baseline, participants perceived diabetes to be very serious ( $82 \pm 25$ , based on an 11-point scale from 0-100), and these perceptions increased significantly by post-program ( $92 \pm 17$ ;  $p = 0.002$ ). However, participants had lower scores for their susceptibility to diabetes, with no significant differences from baseline to post-program ( $55 \pm 23$  vs  $59 \pm 28$ ;  $p = 0.57$ ). Participant CSE was relatively high at baseline, with no significant differences to post-program for all four behaviours i.e., increasing vegetables and fruit (VF) and low-fat foods (LFF) and decreasing sugar sweetened beverages (SSB) and high calorie foods (HCF) ( $74 \pm 20$  vs  $71 \pm 14$ ,  $73 \pm 14$  vs  $67 \pm 18$ ,  $73 \pm 22$  vs  $79 \pm 19$ ,  $71 \pm 25$  vs  $77 \pm 18$ , respectively;  $p > 0.05$ ; 11-point scale from 0-100). Surprisingly, for some barriers/facilitators, CSE was significantly lower post-program (i.e., inadequate time to prepare foods and when they are encouraged by others to consume both VF and LFF). Conversely, CSE for decreasing SSB and HCF even when their family wanted to eat/drink those foods/beverages increased significantly from baseline to post-program. Self-efficacy to eat healthier in the next 3 months decreased significantly from baseline to mid-program ( $92 \pm 11$  vs  $85 \pm 12$ ;  $p < 0.05$ ) and increased non-significantly by post-program. **Implications & Conclusions:** Individuals with pre-diabetes, who participated in PREPARE, thought that diabetes was very serious but were less likely to think they were susceptible to developing diabetes. CSE appears high in this population, and could decrease with lifestyle education. Funded by The Lawson Foundation.

## **Update on the potential for interaction of warfarin therapy with herbs, and other natural health products**

Heidi Los<sup>1</sup>, K Cohen<sup>2</sup>, <sup>1</sup>University Health Network Dietetic Internship, Toronto, Ontario, <sup>2</sup>University Health Network, Toronto Western Hospital, Toronto, Ontario

**Objective:** To contribute to the development of a Stroke Knowledge Pathway in PEN (Practice-Based Evidence in Nutrition®) international database, by answering a question related to the safety of herbs and other natural health products (NHPs) for people on warfarin therapy.

**Methods:** A comprehensive literature search was conducted (2004-2014) using key words such as natural health product, warfarin, anticoagulant, herbs, hemorrhage, stroke, and drug interactions. Eleven articles were found to use for evidence. **Results:** In addition to finding

evidence to further support the current PEN ® content for *Ginkgo biloba* and common herb use; new content for noni juice, black licorice, and forskolin was found, and significant updates on Vitamin E. Single case studies for noni juice and black licorice indicated suboptimal warfarin therapy as evidenced by an altered International Normalized Ratio (INR) after product consumption. Theoretical interaction between warfarin and black licorice and forskolin was demonstrated by animal and *in vitro* studies. A retrospective cohort study found a significant correlation between elevated serum Vitamin E and bleeding events in patients with atrial fibrillation on warfarin therapy, not receiving antioxidant supplementation. This was interesting given the findings of a 2010 meta-analysis of nine RCTs, which found that vitamin E supplementation, regardless of dose amount, significantly increased the risk for hemorrhagic stroke by 22%. However, another meta-analysis of 13 RCTs (2011) did not concur, reporting no statistically significant harm or benefit from Vitamin E supplementation with respect to preventing stroke or stroke subtypes. **Implications and Conclusions:** The conflicted nature of the evidence regarding Vitamin E supports a recommendation to avoid supplementary use for the prevention of stroke. More investigation into the potential for interaction with oral anticoagulant therapy is necessary. Additionally, caution is advised for patients on anticoagulation therapy who wish to consume any of the NHPs considered here.

## **The use of supplements at St. Michael's hospital: Collaboration between Registered Dietitian practices and patient perspectives to create best practice resources and optimize nutritional intake**

Erin M'Larkey, & Laurie Wybenga; Dietetic Interns Heather Fletcher, RD

**Objectives:** The purpose of this project is to establish the amount of supplements used at St. Michael's Hospital (SMH), current dietetic practices regarding supplement use, and patient perspectives of supplements and meals provided. **Methods:** This project utilized both quantitative and qualitative methods. CBORD reports were used to determine the number and

type of supplements dispersed, as well as the financial impact. An interview guide was developed to explore both the practices of dietitians regarding supplements, and the patient experience of receiving and consuming supplements. The results were compiled into a decision tree to facilitate best practice sharing amongst dietitians. **Results:** A total of 11 dietitians and 5 patients were interviewed for this project. All dietitians agree that supplements are used when food is not enough; the same themes of screening a patient for nutrition intake, then optimizing what they eat before adding supplements are followed. Patients are taught why supplements are important, and are reassured to ensure the supplement is meeting their needs. Patients report that they would rather eat food than receive a supplement, but understand the role of supplements in their care. Communication, delivery, and food safety problems were raised as barriers to ideal supplement use. **Implications & Conclusions:** This study suggests patients and dietitians agree about the role of supplements in care. Meals are optimized before supplements are added and patients are taught why supplements are important. All dietitians screen at risk patients, optimize food intake first, educate patients when starting supplements, and monitor their progress; but the specific practices vary. Therefore a decision tree, outlining the various practices, was developed to facilitate best practice sharing among dietitians at SMH. Teamwork between dietitians and PFS is important to ensure patients get the nutrition they need to recover. Continuing to optimize food intake before adding supplements and considering the above recommendation may help improve patient nutrition and recovery, while limiting waste and cost to SMH.

### **Do women with gestational diabetes mellitus attending an Island Health Diabetes Education Centre meet the recommendations for gestational weight gain? A retrospective chart review**

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**Objectives:** To describe the gestational weight gain (GWG) of women with gestational diabetes mellitus (GDM) who attend a diabetes education centre (DEC) on Vancouver Island, and to determine if these women meet their GWG targets as outlined by the Institute of Medicine (IOM) 2009 guidelines. **Methods:** Ethics applications have been submitted to the appropriate Island Health and UBC ethics boards. Data will be collected from willing participants' charts to determine the mean age of women with GDM attending the DEC; the distribution of pre-pregnancy BMI; the mean gestational age at the first and last DEC visit; the percentage of women below, at and above their GWG target according to the IOM 2009 guidelines; and the mean number of visits to the DEC. **Results:** There are currently no results. **Implications and Conclusions:** This project is awaiting approval from UBC and Island Health ethics boards. Agreement regarding level of consent and review needed for accessing Island Health patient data for a retrospective chart review required negotiation between the two REB and multiple applications. Data collected from this study will provide health professionals, including registered dietitians, at the DEC with descriptive statistics regarding overall clients' GWG. This may inform recommendations regarding program design at the DEC.

## **Seasonal variation in nutrition-related laboratory parameters among peritoneal dialysis patients**

*C. Adair, H. Robinson, V. Ngo, J.C. Koh, University of British Columbia Dietetic Internship Program, Providence Health Care. Vancouver, BC*

**Purpose:** To assess whether there are seasonal differences in the nutrition-related lab parameters of peritoneal dialysis (PD) patients at St. Paul's Hospital (SPH). **Methods:** Seventy-four patients enrolled in the SPH PD program between December 01, 2012 and November 30, 2013 were included in the study. Monthly serum potassium, albumin, phosphorus, calcium, and sodium values were extracted from the Patient Records and Outcome Management Information System (PROMIS) and grouped according to the meteorological seasons: Winter, Spring, Summer and Fall. Comparative analysis was conducted across seasons using one-sample t-tests. Target ranges were defined using the Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines.

**Results:** When compared to the reference season (Winter), mean potassium values were higher in Spring ( $0.10 \pm 0.39$ ) and Summer ( $0.10 \pm 0.43$ ) ( $p < 0.05$  for both). While mean albumin levels were lower in Summer ( $-0.68 \pm 2.56$ ,  $p < 0.05$ ) and Fall ( $-1.18 \pm -3.38$ ,  $p < 0.01$ ), a similar proportion of the sample fell below the targets for each season (Winter: 28%; Spring: 28%; Summer: 27%; Fall: 31%). No significant seasonal differences were found for phosphorus, calcium or sodium. More participants had phosphorus values that were above the target range than below, and these proportions remained consistent throughout the seasons (Winter: 27% above, 3% below; Spring: 28% above, 3% below; Summer: 32% above, 0% below; Fall: 28% above, 3% below). A majority of the participants had calcium values within the target range for each season (86.5% - 90.6%), while a large proportion of the participants had sodium values below the range (25.7% - 28.4%). **Implications & Conclusions:** Statistically significant seasonal variations were found for two of the studied parameters. Although findings do not appear to necessitate changes to practice at this time, further studies are warranted to explore the influence of dietary practices on the seasonal variations demonstrated in this study.

## **Identification of nutrition and physical activity goals associated with reduction of adiposity: Results at 6-months from a family-based lifestyle intervention in overweight and obese children 6-12 years of age**

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**Objectives:** The SMART (specific, measurable, attainable, realistic, timely) goals approach is used in childhood obesity management. This study aims to identify the types of nutrition and physical (sedentary) activity goals associated with reduction in adiposity in overweight and obese (OV&OB) children participating in a family-based lifestyle intervention. **Methodology:** Healthy OV&OB children (n=100) from the McGill Youth Lifestyle Intervention with Food and Exercise Study (clinicaltrials.gov, NCT01290016) were randomized to either intervention (INT) group or control (CTL). INT received 5 SMART-based interventions with a dietitian over 6 mo. Height and weight were measured to compute body mass index-for-age z-scores (BAZ). SMART goals were coded using Theory of Planned Behavior (attitude, subjective norm, perceived control) and Ecological model (individual, family). Groups were divided into: “successful” (SUC) if BAZ was maintained/decreased or “unsuccessful” (UNS) if BAZ increased over 6 mo. Differences among groups were tested using mixed model ANOVA and relationships between BAZ and SMART goals using Pearson’s correlations. **Results:** At baseline, participants were  $9.44 \pm 1.90$  y, 55% female, average BAZ was  $3.08 \pm 1.04$ , CTL (n=51) and INT (n=49) were not different. CTL was 53% successful ( $-0.25 \pm 0.18$  BAZ) and 47% unsuccessful ( $0.14 \pm 0.12$  BAZ) ( $p < 0.001$ ). INT was 75% successful ( $-0.29 \pm 0.22$  BAZ) and 25% unsuccessful ( $0.29 \pm 0.27$  BAZ) ( $p < 0.001$ ). The percentage of goals classified as “subjective norm” was higher in INT-SUC compared to INT-UNS ( $66.4 \pm 15.1$  % vs  $57.5 \pm 13.6$  %,  $p = 0.036$ ). In INT overall, the proportion of goals classified as “subjective norm” was inversely correlated with BAZ change ( $r = -0.39$ ,  $p = 0.007$ ). Other descriptors didn’t provided significant results. **Implications & Conclusion:** Reductions in BAZ in OV&OB children were mainly ascribed to SMART goals addressing “subjective norm”, which refers to social pressure to perform a behavior, transmitted by those that influence an individual’s decisions.

## **Alcohol and caffeine intake: Independent risk factors for atrial fibrillation?**

*F Safi<sup>1</sup>, K Cohen<sup>2</sup>, <sup>1</sup>University Health Network Dietetic Internship, Toronto, Ontario, <sup>2</sup>University Health Network, Toronto Western Hospital, Toronto, Ontario*

**Objectives:** To contribute to the development of a Stroke Knowledge pathway in the PEN: Practice-Based Evidence in Nutrition® international database by answering a question related to alcohol and caffeine intake and risk of primary atrial fibrillation (AF). Secondary adverse complications of alcohol and caffeine intake in adults with co-morbidities were also reviewed. Caffeine and alcohol have long been considered factors associated with increased risk of AF, one of the most prevalent arrhythmias, which can in turn increase risk of stroke by 2-5 times relative to those without AF. **Methods:** A comprehensive literature review was conducted using MEDLINE and PubMed databases. The search terms used were alcohol, caffeine, coffee, atrial fibrillation and arrhythmia. Data on caffeine consumption from four studies conducted in 2008-2014 and alcohol consumption from six studies conducted in 2010-2013 were collected from food frequency questionnaires (FFQs) and personal interviews with participants. Grading guidelines developed by PEN® were used to grade and appraise the studies, which were then summarized into Key Practice Points (KPP). **Results:** Studies have concluded that caffeine consumption is not associated with an increased risk of AF and that habitual caffeine consumption may reduce risk of AF. Alcohol consumption is associated with an increased risk of

AF in a linear dose response manner, with an 8% increase in AF risk for 10g increase in daily alcohol intake (RR 1.08,  $p < 0.001$ ). Implications and Conclusions: Based on the current body of literature, caffeine consumption does not increase risk of AF in individuals with and without comorbidities however alcohol intake is associated with increased risk of AF development or adverse events in individuals with AF. Greater investigation through randomized clinical trials is required to determine the full range relationship between alcohol intake levels and primary and secondary AF.

## **Characteristics of adults on home enteral nutrition who return to a Fraser Health facility**

*R Burgess1, S Cromwell1, A Grewall1, W Hussain1, G Ly, K Hovbrender, RD, CNSC2,*

**Background:** To date in Canada, there is inadequate research examining home enteral nutrition (HEN) and lack of data within Fraser Health (FH) regarding returns to FH facilities for tube- or nutrition-related complications. **Objectives:** The objectives of this study were to describe the demographic and clinical characteristics of adult patients on HEN who returned to a FH facility and analyze the proportion of returns for tube- or nutrition-related complications. **Methods:** A retrospective chart review was conducted on adult patients discharged on HEN who returned to a FH facility between April 1, 2010 and March 31, 2012. The Electronic Medical Record (EMR) was reviewed to obtain information such as age, frequency of returns to a FH facility, reasons for returns, and whether patients were seen by a Registered Dietitian (RD) during their return visit. The data was analyzed using Excel and descriptive statistics were conducted. **Results:** A total of 33 patients were included in the study. Among the 33 study patients, there were 132 returns to a FH facility during the study period. Of these returns, 36% ( $n=48$ ) involved tube- or nutrition-related complications. The mean age of patients was 65 years (SD 13, range 31-90). Patients who returned to a FH facility for tube- or nutrition-related complications did so an average of 4 times (SD 2, range 1-9) during the study period. The most common tube- or nutrition-related complication was aspiration pneumonia ( $n=10$ , 21%). Other common HEN-related complications included tube migration ( $n=8$ , 17%), occlusion ( $n=6$ , 13%), and fluid/electrolyte imbalance ( $n=5$ , 10%). Nineteen of the 48 tube- or nutrition-related returns involved a RD assessment. **Implications & Conclusions:** These findings provide a description of adult HEN patients in FH and returns to FH facilities for tube- or nutrition-related complications. This baseline data can be used to inform key stakeholders regarding healthcare resources used to support HEN patients and the potential impact of limited home care RD resources