

**Title: Perceptions de l'alimentation traditionnelle et canadienne d'enfants immigrants et canadiens d'âge scolaire – Résultats préliminaires**

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**Objectif :** Explorer les perceptions de l'alimentation canadienne et traditionnelle d'enfants immigrants de descendance africaine ou caribéenne, et d'enfants de descendance canadienne.

**Méthodes :** 250 enfants de 6 à 12 ans ont participé à cette étude. Nous leur avons demandé de faire deux dessins : l'un représentant l'alimentation au Canada et l'autre représentant l'alimentation du pays d'origine de leur mère. Les enfants ont par la suite décrit leurs dessins lors d'une entrevue. Les descriptions des enfants ont été codées avec le logiciel NVivo. Des fréquences de mots ont été générées par le logiciel pour illustrer les aliments mentionnés les plus souvent pour les aliments traditionnels (africains ou caribéens) et canadiens.

**Résultats :** L'échantillon était composé de 49,6% d'enfants ayant une mère originaire d'Afrique subsaharienne, 23,6% des Caraïbes et 26,8% du Canada. Les trois aliments les plus fréquemment mentionnés par les enfants au sujet de leur dessin de l'alimentation africaine furent, en ordre décroissant, « sauce », suivi par « riz » et « poulet ». Les trois aliments dessinés le plus souvent pour l'alimentation caribéenne furent « riz », suivi par « poulet » et « viande ». Parallèlement, les trois aliments les plus fréquemment nommés par les enfants au sujet de leur dessin sur l'alimentation canadienne furent « pomme », suivi par « pizza » et « riz ».

**Conclusion :** Selon ces résultats, le discours des enfants à propos de l'alimentation traditionnelle et canadienne différait. Toutefois, le riz occupait une place importante dans les perceptions des deux types d'alimentations. Nous avons également constaté l'apparition d'aliments de restauration rapide lorsqu'il a été question de l'alimentation canadienne. Ceci démontre l'importance d'étudier le phénomène de l'acculturation pour contribuer à améliorer la santé nutritionnelle des enfants immigrants au Canada.

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**Title: The relationship between milk fat content, vitamin D and adiposity in early childhood**

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**MSc/RD Program:** University of Toronto MSc Nutritional Sciences/The Hospital for Sick Children Dietetic Internship (Shelley Vanderhout)

**Objectives:** Fortified cow's milk is the main dietary source of vitamin D and an important source of dietary fat for North American children. Current guidelines recommend reduced milk fat consumption to reduce childhood obesity, yet the relationship between lower milk fat, vitamin D stores and adiposity is unclear. The objective of this study was to determine the association between percent fat content of milk and both zBMI and 25-hydroxyvitamin D; secondly, to explore if volume of milk consumed modified this relationship.

**Methods:** A cross-sectional study of healthy urban children 12-72 months of age was conducted. Adjusted bivariate linear regression was used to test the association between percent milk fat content and child 25-hydroxyvitamin D and zBMI concurrently. The interaction between volume of milk consumed and percent milk fat content was examined to explore how milk volume might modify these relationships.

**Results:** 2745 children were included in the analysis. Percent fat content of milk was positively associated with 25-hydroxyvitamin D ( $p=0.006$ ), and negatively associated with zBMI ( $p<0.0001$ ). Children who drank homogenized milk (3.25% fat) had 5.4 nmol/L (95% CI 4.32 to 6.54) higher median 25(OH)D concentration and 0.72 lower (95% CI 0.68 to 0.76) zBMI score than children who drank skim milk (0.1% fat). Volume of milk consumed potentiated the effect of percent fat content of milk on 25-hydroxyvitamin D ( $p=0.003$ ) but not on zBMI ( $p=0.77$ ). Children who drank 1 cup of homogenized milk each day had a similar 25-hydroxyvitamin D as children who drank 2.85 cups (95% CI 2.71 to 2.99) of skim milk, but had zBMI score 0.78 (95% CI 0.63, 0.93) units lower.

**Implications & Conclusions:** Homogenized milk may be more appropriate than reduced fat milk in maximizing serum 25-hydroxyvitamin D and minimizing adiposity in early childhood. Current guidelines for reduced milk fat consumption in childhood may require further study to achieve desired outcomes.

**Title: All milks may not be created equal: goat's milk, plant-based milk, cow's milk and serum 25-hydroxyvitamin D levels in early childhood**

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**Objectives:** We have previously identified a dose dependent relationship between higher consumption of non-cow's milk and lower vitamin D levels in early childhood. It is unclear whether this is true for both animal based (goat's milk) and plant-based (soy, almond, rice, etc.) milk beverages. The primary objective was to determine whether the relationship between non-cow's milk consumption and children's serum 25-hydroxyvitamin D level is different for goat's milk and plant-based milk beverages. The secondary objective was to compare these associations to the relationship between cow's milk consumption and 25-hydroxyvitamin D.

**Methods:** In this cross sectional study, children 1-6 attending routine primary healthcare visits were recruited. Survey responses, anthropometric and laboratory measurements were collected. The association between cow's milk, goat's milk and plant-based milk beverages with 25-hydroxyvitamin D was determined using an adjusted multiple linear regression model, adjusted for clinically relevant covariates. SAS 9.3 and R 3.0.3 were used to conduct the statistical analyses. This study was approved by St. Michael's Hospital and Sickkids Research Ethics Boards.

**Results:** A total of 2711 children were included. Goat's milk consumption appeared to have a trend towards higher serum 25-hydroxyvitamin D level per cup ( $p=0.2$ ) and plant-based milk beverage consumption was associated with a 3 nmol/L lower serum 25-hydroxyvitamin D level per cup ( $p=0.01$ ). The magnitude of the effect of plant-based milk consumption on children's 25-hydroxyvitamin D was lower than both cow's milk ( $p<0.0001$ ) and goat's milk ( $p=0.01$ ).

**Implications and Conclusions:** Plant-based milk beverage consumption was associated with lower serum 25-hydroxyvitamin D levels in early childhood. This association was significantly lower in magnitude than the association between animal-based milks and 25-hydroxyvitamin D. Vitamin D supplementation, improved nutrition education, and standardized vitamin D content for plant-based milk beverages may mitigate effects on 25-hydroxyvitamin D and help ensure caregivers are making informed decisions.

**\*Title:****Can the consumption of docosahexaenoic acid containing eggs improve electrophysiological retina function in Caucasian older adults for the prevention of age-related macular degeneration?**

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**Objectives:** This study investigated whether DHA enriched egg consumption can improve electrophysiological retina function for the prevention of age-related macular degeneration (AMD) in Caucasian older adults.

**Methods:** A total of thirty (male: n=11, female: n=19) healthy Caucasian older adults (64.0 ± 3.4 years of age), not taking lipid lowering medications, consumed two DHA enriched eggs (220 mg DHA/day) daily for six weeks while avoiding supplements and foods high in eye related nutrients including flax and fatty fish. A full field electroretinogram (ERG) was conducted to measure rod and cone cell function at day 0 (PRE) and 6 wks (POST), and plasma was collected for DHA and cholesterol (Chol) determination.

**Results:** Post intervention, scotopic A-wave (rod photoreceptor cell) maximum amplitude (log cds/m<sup>2</sup>) significantly ( $p < 0.001$ ) increased (PRE: 234.58 ± 9.38, POST: 270.39 ± 8.67). Photopic B-wave (cone photoreceptor cell) maximum amplitude increased (PRE: 71.97 ± 3.25, POST: 101.47 ± 5.84), although did not reach statistical significance. During this period, plasma DHA levels significantly increased by 35.4% ( $p < 0.001$ ). Total Chol (mmol/L) increased by 4.6% (PRE: 5.72 ± 0.20, POST: 6.01 ± 0.22), HDL-Chol increased by 3.3% (PRE: 1.60 ± 0.09, POST: 1.66 ± 0.09), and LDL-Chol increased by 7.3% (PRE: 3.44 ± 0.16, POST: 3.69 ± 0.18) however, these changes were not significant ( $p > 0.05$ ). A non-significant reduction of 2.61% (PRE: 1.56 ± 0.12, POST: 1.50 ± 0.11) in plasma triacylglycerides (TAG, mmol/L) was also present.

**Implications and Conclusions:** In conclusion, this is the first study to suggest that consuming two DHA enriched eggs daily may improve electrophysiological retina function without adversely altering plasma Chol and TAG in Caucasian older adults. Additionally, an increase in plasma DHA may indirectly be indicative of DHA concentrations within the retina. Overall, these findings suggest eggs containing DHA may be a simple nutritional strategy

**Title: Fetal alcohol spectrum disorder: Are pregnant women getting enough nutrients to reduce the risk?**

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**Objectives:** Optimal maternal nutritional status is required for development of a healthy infant. Drinking during pregnancy puts mothers at risk for nutrient deficiencies and increases the risk of Fetal Alcohol Spectrum Disorder (FASD). The current body of research has focused on interventions using nutrients important to fetal brain development (choline, DHA, folate, vitamin A, zinc) to reduce FASD in animal models. Whether mothers at risk for having a baby with FASD are consuming adequate amounts of these nutrients during pregnancy is unknown, due to a lack of sufficient research data. Therefore, this study aims to identify intake of these nutrients in pregnant mothers.

**Methods:** Through community engagement with Mount Carmel Clinic and other prenatal programs in Winnipeg, pregnant women were interviewed. An interactive questionnaire, developed in our lab, collected data on participants' demographics, food and alcohol intake patterns, lifestyle parameters, and pregnancy. A food frequency questionnaire and 24-hour recall were used to determine nutrient intake.

**Results:** Of the women who participated, 46% (n=26) had alcohol exposure during their pregnancy. Nearly all participants met Estimated Average Requirements for zinc (96.4%), and vitamin A (96.4%), while less than half did for folate, choline, and DHA (44.6%, 48.2%, and 16.1% respectively). Further analysis found no significant differences in intakes between participants with alcohol exposure and those without ( $p > 0.05$ ).

**Implications and Conclusions:** Findings show that intake of certain nutrients important to fetal brain development are not being consumed in recommended amounts. Although there was a high rate of alcohol exposure, few participants were chronic drinkers, which likely contributed to similar intakes between those with alcohol exposure and those without. Study outcomes may help provide future nutrition interventions to enhance the health of mothers consuming alcohol during pregnancy and their infants, potentially reducing the effects of FASD.

**Title:            **Analysis of Meals on Wheels programs in Annapolis Valley****

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Catherine Morley, Acadia University

**Objectives:** To explore options for the delivery system and organization of Meals on Wheels (MOW) programs Annapolis Valley Health District (AVHD), in response to a request for assistance. Also, to conduct a SCOT (strengths, challenges, opportunities, and threats) analysis in conjunction with a gap analysis of the MOW programs in the AVHD to articulate and compare the current state of affairs (CSA), and the desired state of affairs (DSA), and identify strengths, challenges, and opportunities for the program.

**Methods:** The method used to recruit informants was the snowball approach whereby an initial participant was suggested and then was asked to identify others that could be added to the sample. Informants were interviewed using semi-structured points for discussion.

**Results:** It was found that autonomy over meal times, meal quality, menu diversity, social contact, and accommodation of preferences, were all vital aspects of the service. Although the delivery of nutritionally complete meals and the social interaction the volunteers provide are strengths of the program, the current state of the AVHD MOW program does not optimally serve clients and is in need of modifications. The DSA is comprised of four guiding principles: increasing social contact, minimizing nutritional risk, individualizing the service based on clients needs, and utilizing a delivery system which retains the quality of meals, increases clients' food safety practices, and enhances the ability to individualize the menu.

**Implications & Conclusions:** In order to achieve the DSA of the MOW program, the structure of the program should be modified based on clients needs to achieve financial sustainability, and thereby permitting a change in the delivery system and consequentially facilitating greater individualization of the service. The findings of this study are useful in considering needs of services for seniors in rural Atlantic Canada as the literature predominately results from studies in urban settings.

**\*Title:****Consommation de boissons sucrées et statut pondéral d'enfants en situation minoritaire visible ou linguistique vivant à Ottawa: Résultats préliminaires**

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**Objectif :** 1) Évaluer la consommation de boissons sucrées (BS), le statut pondéral d'enfants en situation minoritaire à Ottawa et leur association.

**Méthodes:** Cent cinquante enfants âgés de six à douze ans ayant une mère originaire du Canada (N=19), d'Afrique subsaharienne (N=94) ou des Caraïbes (N=37) ont été recrutés à Ottawa. La langue officielle la plus souvent parlée à la maison a été auto-rapportée par les mères. La consommation de BS (boissons gazeuses régulières, les jus et boissons à saveur de fruits, le thé sucré et le chocolat chaud à base d'eau) a été estimée avec un rappel de 24 heures. Le score-z de l'IMC a été calculé selon les normes de croissance de l'OMS. Des analyses bivariées ont été effectuées pour comparer les groupes ethnoculturels et linguistiques avec SPSS. Une corrélation de Spearman a permis d'évaluer la relation entre la consommation de BS et le statut pondéral des enfants.

**Résultats:** La consommation de BS semblaient plus fréquentes chez les enfants de descendance caribéenne (86,5%) et africaine (81,9%) comparativement aux enfants canadiens (68,4%). Parmi les consommateurs de BS, les enfants ayant une mère immigrante semblaient en avoir bu davantage que les enfants de descendance canadienne (7,4 versus 4,6 portions, respectivement). La consommation de BS n'était pas associée au statut pondéral ( $p > 0,05$ ). Aucune différence significative n'a été observée dans la proportion de consommateurs ou dans la quantité de BS consommée entre les différents groupes ethniques ou linguistiques.

**Implications et conclusions:** Bien que les différences n'étaient pas significatives, ces résultats préliminaires démontrent que trop de BS sont consommées et appuient la nécessité de développer des interventions au niveau individuel et populationnel adaptées à la population immigrante à risque afin d'aider à prévenir les maladies chroniques. Financement: CNFS-volet Université d'Ottawa et Université d'Ottawa.

**Title: Is the nutritional quality of products marketed as gluten-free comparable to those sold as non gluten-free? An analysis in the Canadian pre-packaged food supply**

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**Objectives:** To compare the nutritional quality of pre-packaged foods sold in Canada carrying gluten-free (GF) claims compared to similar products without it (NGF) in food categories with highest prevalence of such claims.

**Methods:** Data was obtained from the University of Toronto 2013 Food Label Information Program database, which contains nutrition and claims information of pre-packaged foods (n=15,401). Products were a) classified as GF if a GF declaration was made on package, and b) assigned a summary score of "healthfulness" using the Food Standards Australia New Zealand Nutrient Profiling Scoring Criterion (FSANZ-NPSC), in which a higher score indicates a lower nutritional quality.

**Results:** Although 7% (n=1119) of products carried a GF claim, it varied across categories with snacks (18.2%), desserts topping-fillings (16.2%), meat-poultry (15.6%), nuts-seeds (12.3%), sauces-dips (10.7%), cereals-grains (10.4%), fats-oils (10.1%), soups (8.5%), miscellaneous (8%) and bakery (7%) carrying the highest proportion of GF claims (supplements were excluded). Mean FSANZ-NPSC scores did not differ between GF and NGF products within the snacks, cereals-grains, soups and miscellaneous categories (p>0.05). GF products had higher mean score (lower nutritional quality) than NGF in desserts topping-fillings (means[SD]= 19[2] vs. 12[6], respectively, P<0.0001), meat-poultry (14[8] vs. 9[8], P<0.0001), and nuts-seeds (3.6[10] vs. -0.8[8], p=0.012) categories, and lower score (better nutritional quality) in sauces-dips (4[8] vs. 8[7], p<0.0001), fats-oils (13[10] vs. 21[8], p<0.0001), and bakery (9[8] vs. 11[9], p=0.008).

**Implications:** This information is especially relevant for consumers who may incorrectly associate the absence of gluten with healthfulness. For most categories, GF products were not healthier or were equal to their NGF counterparts, while some categories had better nutritional quality compared to their NGF equivalents.

**Conclusions:** These results demonstrate the significance of using nutrient profiling systems to rate the "healthfulness" of foods, rather than single nutrient claims. Funding: OSOTF[BFA]; CIHR[ML,BFA]; Earle W. McHenry Chair Grant[ML]; CIHR Fellowship[MEL]



**\*Title:****Effectiveness of Diabetes Education Center (DEC) programs in the Greater Toronto Area (GTA): patients' perspectives**

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**Objectives:** The success and effectiveness of diabetes self-management programs has been rarely studied from the patients' point of view among multiethnic populations. The aim of this research was to evaluate the perspectives and perceptions of Middle Eastern patients with type 2 diabetes regarding the self-management programs including services received in diabetes education centers (DEC) in the Greater Toronto Area (GTA).

**Methods:** Iranian patients with type 2 diabetes attending DECs in the GTA were recruited (n=22). We conducted four detailed focus group interviews in Farsi using a focused ethnographic approach and collected detailed dietary and socio-demographic information using pre-tested questionnaires. All interviews were audio-taped, transcribed in Farsi to preserve linguistic authenticity and coded and the data were analysed using the thematic content analysis approach.

**Results:** Social barriers and cultural interactions with health-care professionals emerged as one of the most important challenges of patients in initial acceptance and adjustment to the diagnosis and later self-management of type 2 diabetes. Specifically, participants did not know what a diabetic diet was, could not differentiate calories from carbohydrates, and some patients (6/22) were avoiding all sources of carbohydrates. Most worryingly, 12 patients could not really define the role of dietitians, few could differentiate between nurses and dietitians and only 3 had seen a registered dietitian at the DEC for self-management of diabetes. Generally, these patients were concerned that DEC dietitians were unaware of Iranian dishes or their preparation techniques and therefore would be unable to suggest healthy alternatives.

**Implications and Conclusions:** These findings re-emphasize the important role of introducing dietitian services to multiethnic patients with type 2 diabetes, who are also at higher risk for this debilitating disease. Additionally, they identify the challenges that could be addressed by culturally-competent dietitians to improve the quality of care provided to this vulnerable group.

**Title: Perceptions of dietary resilience among older community- dwelling and long term care residents**

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Laura Gougeon, PhD, Professor at StFX

Dietary resilience can be understood as “bouncing back” or maintaining an adequate diet in the face of adversity. A deeper understanding of dietary resilience among older adults living in the community and in nursing homes can be used as a strength-based approach to nutrition care.

**Objectives:** To understand dietary resilience among older (>65y) community-dwelling and long term care (LTC) residents by exploring whether and how eating habits and relationship with food changed in the face of perceived hardships, and identify strategies used to overcome those hardships.

**Methods:** Semi-structured individual interviews with six LTC residents and five community-dwelling older adults were transcribed and thematically analyzed.

**Results:** Dietary resilience centered on three themes: hardships, changes in diet, and strategies. Hardships included death, health concerns, and moving to the LTC home. Changes in diet revolved around quality and quantity changes. Strategies used were internal (such as attitude) and external (such as social support), with the latter being more commonly used among community-dwellers.

**Implications and conclusions:** Both community-dwellers and LTC residents perceived themselves as being successful in bouncing back to their eating habits prior to the hardships by using different strategies—even though they did not clearly recognize it as “dietary resilience.” Health professionals should strive to facilitate dietary resilience among older adults in LTC facilities and in the community by supporting the use of internal and external strategies, as a means to maintain seniors’ independence and quality of life.

**Title: Traditional food access in Nova Scotia**

Amy Grann (Acadia University, Honours student)

Liesel Carlsson (Acadia University, Professor)

Kayla Mansfield (Acadia University, Masters of Education in Leadership)

**Objectives:** The objective of this research was to facilitate a better understanding of the barriers and supports that exist in accessing traditional food for Aboriginal Peoples in Nova Scotia.

**Methods:** Two focus groups were held (n=16), one off-reserve and one on-reserve in a talking circle format to facilitate discussion on traditional food access. Focus groups were transcribed and analyzed using Bronfenbrenner's ecological systems theory and with use of the medicine wheel as an evaluation framework.

**Results:** Supports common between both groups were strength of cultural values, community engagement, and consultations and partnerships. Overall barriers were knowledge/education, identity, community, land access, cost, tourism, and policies. Main barriers on-reserve were land ownership, developments and construction; and off-reserve, limited community support and knowledge circulation.

**Implications & Conclusions:** Both supports and challenges exist for traditional food access in Nova Scotia; however, barriers outweighed supports in both number and magnitude, which is in line with the increasing inequities experienced by Aboriginal peoples in Canada. In order to address barriers to food access, stronger community and political partnerships along with consultations between Aboriginal and non-Aboriginal groups are necessary to address issues of common concern.

**Title: A physiological study to determine the enteral threonine requirements of infants aged 1 to 6 months**

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**Objective:** We set out to determine the requirement of dietary threonine in infants aged 1 to 6 months using the non-invasive indicator amino acid oxidation (IAAO) method. Historically, threonine requirements in term infants have been estimated from breast milk amino acids (AA) or from nitrogen balance studies. Breast milk however varies greatly between women, and nitrogen balance methods are imprecise and potentially hazardous to implement on vulnerable populations. Threonine is found in higher concentrations in formula compared with breast milk since cow milk-based whey must be increased to mimic breast milk ratios of whey to casein. Therefore, as an indispensable AA (IAA) it is of great importance to determine accurate threonine requirements, especially for those infants relying on formula.

**Methods:** Using the concept that a deficiency of one IAA will stop all IAAs from incorporating into protein, and since AAs cannot be stored, they must be oxidized and used for energy with excretion of nitrogen as urea. As the intake of the limiting AA increases to requirement, in this case threonine, the degree of oxidation will decrease as more AAs are being incorporated into protein. This phenomenon allows us to determine a requirement for threonine when an oxidation plateau is observed. The study subjects will be 18 post-surgical infants from SickKids (Toronto), who will be randomized to a graded threonine level. The infants will already be tube fed and given the test formula, combined with the stable isotope labelled <sup>13</sup>C-Phenylalanine, for 24 hours. Whole body phenylalanine flux and oxidation will be determined via urine and breath samples.

**Results:** As this Health Canada regulated trial began recruitment in February 2016, we are now in data collection phase.

**Implications:** It is our hope to determine a more accurate estimate of threonine requirements in infants, with the ultimate aim of optimizing infant formula preparations.

**Title: Integrating food safety into community food security initiatives – collaborative public health approaches: a review of the grey literature**

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Food safety is a crucial component of food security and should be addressed in planning and implementing any community food security initiative that includes food handling. Traditional public health approaches used to enforce food safety regulations can result in negative outcomes for these initiatives and lead to missed opportunities for collaboration on food safety and health promotion.

**Objective:** To identify collaborative practices and approaches public health practitioners can use in their work with community organizations/groups to integrate food safety measures into community food security initiatives.

**Methods:** A grey literature search of 13 databases including Google, Custom Search Engine for Canadian Public Health Information and Theses Canada was conducted between December 2015 and February 2016 in collaboration with SMDHU library staff. Resources identified through screening were critically appraised using the Authority Accuracy Coverage Objectivity Date Significance Tool (PowerPoints, workshop reports, handouts) or the Critical Appraisal Skills Programme Tool (qualitative research reports). SMDHU, National Collaborating Centre for Methods and Tools (NCCMT) and Peel Region Evidence-Informed Decision-Making (EIDM) sources were considered in developing a data extraction tool used to extract and organize resource content prior to identification and analysis of key themes.

**Results:** Eleven resources met the inclusion criteria; six by the same author. Overall resources described collaborative practices/approaches relevant to public health practitioners and benefits/barriers to working collaboratively from the community perspective. Data synthesis, analysis and interpretation are pending.

**Implications & Conclusions:** Additional research is needed to identify and assess the effectiveness of collaborative practices and approaches public health practitioners can use to enhance their work with community organizations and groups on food security initiatives. Although evidence is limited, preliminary data suggests that collaboration between public health practitioners and community organizations/groups can help improve integration of food safe practices into food security initiatives through the development of positive working relationships.

**Title:** Evaluating the effect of nut consumption on risk of adiposity: A systematic review and meta-analysis of prospective cohort studies

**Authors:** Stephanie K Nishi\*<sup>1,2</sup>, Effie Vigouliouk<sup>1,2</sup>, Sonia Blanco Mejia<sup>1,2</sup>, Cyril WC Kendall<sup>1,2,3</sup>, Richard P Bazinet<sup>1</sup>, John L Sievenpiper<sup>1,2,4,5</sup>

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**Objective:** While nuts have beneficial effects on diabetes and CVD risk, there remains concern that nut intake may result in weight gain due to their high energy density. Our objective was to conduct a systematic review and meta-analysis of the effect of nut intake on markers of adiposity in prospective cohorts.

**Methods:** We searched MEDLINE, EMBASE, and the Cochrane Library data sources. Prospective cohorts  $\geq 1$  year were included. Two independent reviewers extracted relevant data and assessed study quality (Newcastle-Ottawa Scale). Outcome measures included 1) incident overweight/obesity, 2) measures of global adiposity (change in body weight, BMI, body fat), and 3) measures of abdominal adiposity (change in waist circumference, waist-to-hip ratio, visceral adipose tissue) in relation to baseline nut intake. Data were pooled using the generic inverse variance method. Heterogeneity was assessed (Cochran Q) and quantified ( $I^2$  statistic). The overall quality of the evidence was assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.

**Results:** Eligibility criteria were met by 4 prospective cohorts (N=127,879). Baseline nut intake was associated with less abdominal adiposity (waist circumference adjusted OR 0.86 [95%CI: 0.80 to 0.94]), when comparing the highest ( $\geq 100$ g/wk) with the lowest (never or almost never) levels of intake. A baseline increase in one daily serving of nuts (28g/d) was associated with a slight decrease in body weight (adjusted MD -0.06kg [95%CI, -0.10kg to -0.03kg]) per year. The overall quality of the evidence was graded as "very low quality" for both waist circumference and body weight owing to indirectness. Data was not available to assess the relation of nut intake with the other outcomes.

**Conclusions:** Pooled analyses suggest nut consumption is not associated with increased measures of adiposity. The effect estimates, however, are very uncertain. More studies are needed to prospectively assess the effect of nut intake on different measures of adiposity.

**Title:**           **A growing need: School gardens & food literacy among marginalized youth**  
Rekha Menon\*, Catherine Morley. School of Nutrition & Dietetics, Acadia  
University, Wolfville, NS

**Purpose:** The purpose of this project was to explore the relationship between school gardens and food literacy among marginalized youth (aged 13-19) disadvantaged by social factors beyond their control, and to identify challenges with integrating gardens into school curricula. Food literacy is the ability to develop a positive relationship with food by understanding where it comes from, its impact on personal health, and knowing how to grow, prepare and prefer healthy, nutritious foods.

**Method/Process:** Peer-reviewed literature from Canadian, American, and Australian journals including the Canadian Journal of Dietetic Practice and Research, Health Education and Behaviour, and Nutrition & Dietetics were located using the search terms school gardens, youth, at-risk youth, and food literacy. Food literacy outcomes and arising themes were catalogued.

**Results:** There was overwhelming evidence in the literature in support of improved food literacy among youth through participation in school gardens. The hands-on component in gardens offers opportunities to teach beyond the classroom and provides knowledge and skills that students can apply in their daily lives. These include making informed dietary choices, understanding food systems, and developing positive relationships with food. The most common challenge with integrating gardens into school curricula was the data lacking in research to support efficacy.

**Implications & Conclusions:** Although barriers to integrate gardens into curricula were identified, their capacity to improve food literacy among marginalized youth should take precedence in evaluation. Qualitative evaluation approaches can inform learning about outcomes of participatory programs including their impact on food literacy.

**Title: Weighing the benefits and risks associated with the ketogenic diet.**

J Orr, C Morley. School of Nutrition and Dietetics, Acadia University, Wolfville, NS, Canada

The ketogenic diet (a high fat to low protein and carbohydrates ratio) is an effective treatment for epilepsy. The regime is contrary to standard dietary recommendations.

**Objective.** The objective of this research project was to gain a better understanding of how the ketogenic diet affects epilepsy, while also weighing the benefits of the diet against the complications which may arise due to the diet itself.

**Methods.** A literature review was conducted using the search terms, ketogenic diet and epilepsy. Sources reviewed were from *Epilepsia*, *Practice-based Evidence in Nutrition*, *Lancet Neurology*, and *Neurological Surgery*). Interviews were conducted with four mothers with children with epilepsy; two whose children were following a ketogenic diet, and two who were not. One mother who was a registered dietitian shared her professional and personal opinions about the diet.

**Results.** Complications can range from gastrointestinal distress (e.g., vomiting, constipation, etc.) to more severe side-effects (e.g., kidney stones, bone demineralization, etc.). Thus, the ketogenic diet is often used as a last resort treatment after medications are no longer effective. Both mothers whose children were on the ketogenic diet reported fewer seizures, and would recommend the diet. One child was in the process of decreasing their ratios, that is, decreasing fat intakes while simultaneously increasing their consumption of carbohydrates and protein. The second mother reported that she planned to have her child on the diet long term as it had been so successful.

**Implications & Conclusion.** The ketogenic diet is restrictive and has the potential for long-term complications. The potential for complications should be considered prior to beginning the diet. For those experiencing intractable seizures, the diet may be an effective alternative therapy to medication. Questions arising from this study include the potential of this diet to treat other chronic diseases.



**Title: Nutrition and Mental Health - Evaluation of KidsFirst Home Visiting Staff Understanding and Awareness**

Amanda Kilduff University of Saskatchewan Nutrition and Dietetics Practicum

Caitlyn Davidson University of Saskatchewan Nutrition and Dietetics Practicum

**Objectives:** Researchers designed, facilitated, and evaluated a Nutrition and Mental Health Workshop to determine if any change in awareness and understanding of nutrition and mental health had occurred in KidsFirst home visitors and allied health professionals. Researchers determined the usefulness of the workshop by identifying any perceived benefits to the home visitors and allied health providers in their ability to aid KidsFirst families.

**Methods:** Participant responses were collected with questionnaires using a combination of Likert scale questions and open-ended questions. Responses were collected four times throughout the study; one pre-workshop questionnaire, one post-workshop questionnaire, and two follow-up questionnaires. Quantitative responses were analyzed using interval data. Qualitative participant responses were analyzed thematically to establish key themes.

**Results:** Quantitative findings demonstrated that the participants found the workshop to be beneficial to their practice and that they were satisfied with the content from the workshop. Qualitative findings yielded an overarching theme of “Nutrition Impacts Mental Health”, which encompasses four sub-themes: “Affordable Healthy Food”, “Diet has Impact”, “Personal Benefit”, and “Support”.

**Implications:** Administer the Nutrition and Mental Health Workshop annually by senior nutrition students. Offer this nutrition education workshop to other allied health providers that encounter nutrition-related issues.

**Conclusion:** KidsFirst home visitors and allied health providers found the nutrition education increased the awareness and understanding of the link between nutrition and mental health and they found it to be beneficial to their practice.

**Title:            Developing a school-based program to promote a healthy body image in grade 7/8 boys**

*M Bellinger<sup>1</sup>, R Sebesta<sup>1</sup>, V Holla, MPH, RD<sup>2</sup>, <sup>1</sup>Northern Ontario Dietetic Internship Program and <sup>2</sup>Thunder Bay District Health Unit (TBDHU), Thunder Bay, ON.*

Body image is a well-researched topic with pre-adolescent females due to the high prevalence of disordered eating and body alteration habits in this group. Research on body concerns and eating disturbances with adolescent boys is sparse and often conflicting, but is seen as early as pre-adolescence for males, which offers a strategic window for universal prevention. The purpose of this research is to inform the development of a school-based program to prevent unhealthy weight control behaviours and promote a healthy body image in grade 7/8 boys.

**Objectives:** Our research aims to understand the factors that influence the body image of male students in grade 7 and 8 and the most appropriate and effective strategies to deliver our program messages as part of a multi-phase project.

**Methods:** This study utilized a mixed methods design, combining qualitative and quantitative questions. Fifteen key informants (grade 7/8 teachers) were recruited to complete a 9-item online survey (Fluid Surveys<sup>®</sup>) in February/March 2016. Research Ethic Board (REB) approval was granted from Lakehead University. Thematic content analysis was completed to explore participant perspectives.

**Results:** Preliminary results indicate that teachers reported the key factors influencing the body image of grade 7/8 boys were teasing and harassment (67%), self-esteem (60%), and media (47%). Teachers suggested that programming strategies should include technology (e.g. videos, online games or presentations) and interactive activities (e.g. group discussions, games with movement or role playing).

**Implications & Conclusions:** This research is highly applicable to Public Health and School Boards across Ontario and fits within the Ontario Health and Physical Activity Curriculum. This data will be supplemented with teacher focus groups and additional student data (online survey and focus groups) to take place in spring 2016. Following data collection and analysis, program development, implementation and evaluation will occur in 2016-17.

**Title: Understanding the perceptions and importance of the food experience in end of life care: A review**

Authors: Zena van de Poel<sup>1</sup>, Christina Lengyel<sup>2</sup>

Affiliation: <sup>1</sup>Nutrition and Dietetics, Faculty of Health, Nutrition and Sports, The Hague University of Applied Sciences, The Hague, The Netherlands; <sup>2</sup>Department of Human Nutritional Sciences, Faculty of Agricultural & Food Sciences, University of Manitoba, Winnipeg, MB

**Introduction:** When reaching the end of life, nutrition becomes more related to quality of life versus the maintenance of nutritional status. Terminal illness can cause many nutrition-related consequences that impact the patient's quality of life, such as anorexia and weight loss.

**Objectives:** To determine the current state of knowledge regarding the perceptions and importance of the experience of food for adult patients in end of life care (EoLC).

**Methods:** The literature review focused on qualitative research, published in peer-reviewed journals in the English language between 1996 to 2016. Additional literature was identified from references listed in the retrieved articles.

**Results:** Four themes were found in the literature: patients' perceptions; caregivers' expectations; health care professionals' awareness; and food service system. For patients in EoLC, food is no longer something that can be taken for granted, which may lead to feelings of concerns and guilt. Caregivers' unrealistic expectations of a patient's food intake can cause distress in both parties. Eating difficulties can be a 'taboo' subject for health care professionals (HCPs) to discuss. Meals provided by a centralized food service may not be appropriate for this patient group, as it often does not offer the necessary level of individualized options that this patient group requires.

**Implications and conclusions:** Despite the significance of food at the end of life, there appears to be very few studies examining food experiences of patients in EoLC. Caregivers and patients respond differently to changes in the patient's food intake and experience, and HCPs may not be aware of these issues or how to discuss these. Future research is necessary to examine the food preferences of patients in EoLC and how food service systems can be modified to respect these preferences.

**Title: Évaluation des perturbations du sommeil du personnel infirmier en fonction des quarts de travail: un outil supplémentaire dans la prévention de maladies cardiométaboliques**

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**Objectif:** Le travail de nuit est fréquent en milieu hospitalier. Il représente un facteur de risques cardiométaboliques (CM), altère l'appétit et la digestion, nuit au contrôle du poids et à mode de vie sain. Comme le manque de sommeil augmente les risques CM, l'investigation des perturbations du sommeil pourrait être un outil supplémentaire pour les diététistes désirant prévenir des troubles CM. Nous voulions comparer les habitudes de vie (HV) des travailleurs selon les quarts de travail en mettant l'accent sur les habitudes de sommeil.

**Méthodes:** Un questionnaire traitant des HV et de l'état de santé fut posté à l'ensemble du personnel infirmier d'un hôpital montréalais. Nos 226 répondants étaient majoritairement des femmes d'âge moyen et comprenaient 14% de travailleurs de nuit (TN). Les variables de sommeil furent comparées entre les TN et les travailleurs de jour/soir (TJS) et des régressions logistiques furent utilisées pour évaluer les HV en lien avec les perturbations du sommeil.

**Résultats:** Les TN dormaient moins longtemps que les TJS lorsqu'ils travaillaient ( $6.4 \pm 1.3$ h vs  $7.2 \pm 1.3$ h;  $p < 0.01$ ) et rapportaient des perturbations du sommeil plus fréquentes. Particulièrement, 46% des TN avaient un sommeil de mauvaise qualité (vs 23% des TJS;  $p < 0.01$ ), 53% des TN avaient des troubles d'insomnie (vs 35% des TJS;  $p < 0.01$ ) et 30% consommaient des médicaments pour dormir (vs 8% des TJS;  $p < 0.01$ ). En contrôlant pour le quart de travail, l'âge et le sexe, ceux ayant des problèmes d'appétit (PA) et d'embonpoint avaient respectivement 5.6 (IC:1.87-16.56) et 2.2 (IC:1.05-4.74) fois plus de chances de souffrir d'insomnie. Aussi, ceux ayant des PA avaient 5.39 (IC:1.89-15.33) fois plus de chances d'avoir un sommeil de mauvaise qualité.

**Implications et conclusions:** Ces données confirment la grande proportion de perturbations du sommeil chez les TN et suggèrent que ces problèmes pourraient être associés aux problèmes d'appétit et d'embonpoint. Il serait pertinent pour la diététiste de joindre l'évaluation des perturbations du sommeil à l'évaluation nutritionnelle des TN afin de proposer un programme intégré de prévention des risques CM.

**Title:** **Developing and piloting a food insecurity screening initiative for clients living with diabetes**

**First Author:** Brittany Thomas, RD, MHSc (c) Nutrition Communication. Ryerson University, Toronto, ON.

**Second Author:** Dr. Enza Gucciardi, PhD. School of Nutrition, Ryerson University, Toronto, ON.

**Objectives:** Food insecurity adversely affects diabetes self-management and health outcomes for those living with diabetes. Screening for food insecurity is recommended to help care providers devise more tailored interventions for food insecure clients. Our three main objectives were: 1) to identify evidenced-based recommendations for practice for diabetes management in clients experiencing food insecurity through a systematic literature review; 2) to pilot a food insecurity screening initiative for clients receiving diabetes care at South Riverdale Community Health Centre (SRCHC) in Toronto; 3) to assess the feasibility and acceptability of implementing the food insecurity screening initiative.

**Methods:** Qualitative interviews were conducted with care providers and clients receiving diabetes care at SRCHC to determine if the food insecurity screening questions and recommendations for practice were transferrable, relevant and appropriate for the target population. The food insecurity screening initiative was tested in practice for one-week at SRCHC. Afterwards, qualitative interviews were conducted with clients and care providers to collect information about their experience participating in the screening initiative.

**Results:** Findings from our systematic literature review, and qualitative feedback collected from care providers and clients, were used to develop the food insecurity screening and care algorithm, and the recommendations for practice. These tools are intended to help guide care provided to clients who are living with diabetes and experiencing food insecurity. Data from the interviews conducted with care providers and clients after the one-week pilot will be analyzed to determine the feasibility and acceptability of implementing the food insecurity screening initiative.

**Implications and Conclusions:** The interest and support of care providers and clients receiving diabetes care at SRCHC indicates that screening for food insecurity and applying evidenced-based recommendations for practice could help improve diabetes care for food.

**Title: Vitamin D supplementation practices for admitted RIH and KGH patients over the age of 50**

Maya Karlson - Program Manager Interior Health Kelowna Health Center

Cathy Thibault - Administrator Interior Health Corporate Trailer

Kelly Wilson - Quality Consultant Falls and Injury Prevention

Stephanie Fell - UBC Vancouver Dietetic Intern

Danielle Sanders - UBC Vancouver Dietetic Intern

Bridget Kirkland - UBC Vancouver Dietetic Intern

Amanda Turner - UBC Vancouver Dietetic Intern

**Objective:** The need for and benefit of vitamin D supplementation in older adults has been well researched. Interior Health (IH) residential care facilities have established a protocol for vitamin D supplementation, however supplementation practices for older adults have yet to be standardized in IH acute care hospitals. This study aims to identify the current vitamin D supplementation practices at IH's two largest acute care hospitals: Kelowna General Hospital (KGH) and Royal Inland Hospital (RIH) in Kamloops.

**Materials/Methods:** A retrospective chart review was conducted to determine if patients were prescribed vitamin D supplement, and if so, in what form, dosage and frequency. IH Health Records selected 384 charts (192 from each site) beginning with an admission date of March 1, 2015, working forward until sample size was met. As Health Canada recommends vitamin D supplementation for those aged 50 years and over, patients of this age group, with a length of stay of  $\geq 5$  days, were studied. Patients with diagnoses that may require vitamin D supplementation not reflective of the general hospital population were excluded.

**Results:** Of the 384 patients, 102 (27%) received vitamin D supplementation, 46% of which were female. Of those supplemented, 89% were meeting or exceeding Health Canada Vitamin D recommendations of 400 IU/day. Females received 1323 IU/d, while males received 821 IU/d ( $p=0.002$ ). Males and females aged 81 or older received 1327 IU/d, those aged 65-80 received 760 IU/d ( $p=0.005$ ).

**Implications and Conclusions:** Almost three-quarters of patients age 50 years and older were not receiving any vitamin D supplementation while in hospital. Of older adult patients receiving supplementation, 11% did not meet Health Canada's recommendations. Older adult patients may benefit from the development of a formal vitamin D supplementation protocol for IH acute care hospitals; however, further research is recommended to determine barriers to inpatient vitamin D supplementation.

**Title:** **LiveWell Men's Cooking Classes Evaluation**  
Emily Andreiuk, University of Saskatchewan  
Nicole Dyck, University of Saskatchewan  
Chrissa Karagiannis, University of Saskatchewan  
Michele Sheikh, University of Saskatchewan

**Objectives:** Literature on the use of men's cooking classes for self-management of chronic disease is limited. The LiveWell Chronic Disease Management Program at the Saskatoon Health Region is a unique program which offers cooking classes targeted towards men with chronic conditions who are interested in learning about healthy eating and developing skills related to preparing healthy meals. This research is a multifaceted evaluation of the LiveWell Men's Cooking Class (MCC) program and whether the program is effective in achieving its goals. The goals of the program include that participants of the program prepare more meals at home, have more confidence in cooking, dine out less often, and make healthier food choices.

**Methods:** A qualitative process was used to collect data from past program participants about skills and knowledge learned, resources provided, and behaviour and attitude changes made as a result of the program, as well as feedback on and suggestions for future iterations of the program. Methods of data collection included telephone interviews conducted with a sample of 33 past participants, and a focus group held with a subsample of seven participants. Thematic analysis was performed on collected data.

**Results:** Five major themes emerged, including practical and applicable content, kinesthetic teaching and learning, catering to the interests of participants, tailoring to the demographic, and enjoyment and engagement.

**Implications & Conclusions:** Findings indicate the current LiveWell MCC program is effective in meeting its goals. The themes identified are aspects of the program that contribute to this effectiveness. Although the program meets its goals, the themes provide areas on which to focus improvement efforts for enhancement of program effectiveness. Further research on the use of men's cooking classes for self-management of chronic disease is needed.

**\*Title:****Predictors of food skills in university students**

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**Objective:** Limited research exists on predictors of food skills in post-secondary students. Food skills have been linked to a nutritious diet and better health outcomes, including a decreased risk for obesity. The objective of this study was to identify personal, environmental, and food-related factors that are determinants of self-reported food skills in university students.

**Methods:** Undergraduate students (n=30,310) at Western University in London, ON were invited to complete an online questionnaire that assessed perceived nutrition knowledge and food skills. A multiple regression model was used to identify the most important predictors of Total Food Skills Score (TFSS), the sum of 7 individual food skill scores, each on a scale from 0-100.

**Results:** In total, 4,468 students completed the questionnaire. Twelve factors contributed significantly to predicting TFSS,  $p < 0.01$  [ $R^2_{\text{Adjusted}} = 0.40$ ]. The five most important predictors of food skills, for both males and females, were the importance students place on eating healthy foods, meal preparation as a teenager, amount of time currently spent on meal preparation on the weekends, number of times that students currently prepare meals from scratch, and writing a grocery list.

**Implications & Conclusion:** Improving food skills may be an effective approach to combat obesity and improve health outcomes from an economic and public health perspective. This study highlights important factors that predict food skills in post-secondary students, and that may be targeted to successfully improve the level of food skills in this population. Students are a priority group who require time-sensitive and lifestyle-appropriate interventions.



**Title:            Aboriginal cultural competency in dietetics: A national survey of Canadian Registered Dietitians (RDs)**

P Huycke, J Ingribelli, L Rysdale MEd RD. Northern Ontario Dietetic Internship Program, Sault Ste. Marie and Sudbury, ON.

**Objectives:** The Health Sciences Unit at the Northern Ontario School of Medicine (NOSM) has undertaken research to integrate Aboriginal health and cultural competencies into their learner curriculum and programs, including the Northern Ontario Dietetic Internship Program (NODIP). Little has been published on cultural competency curriculum from the dietetic profession, considering how integral food-related beliefs and behaviours can impact health in a given culture. This study will inform NODIP and other Canadian internships.

**Methods:** A 14-item online survey was administered in January 2016 to 145 participants (125 members of Dietitians of Canada (DC) Aboriginal Nutrition Network (ANN) and 20 RDs with an interest in Aboriginal nutrition). Questions included multiple choice and ranking responses and were pretested with a representative sample of NODIP preceptors (n=4). Survey participants provided feedback on the five current cultural and health competencies, six proposed food and nutrition competencies, and their perceived importance. Quantitative data analysis using Excel® included frequencies, pivot tables, and averaging/grouping of ranking scores.

**Results:** A total of 42 individuals (29%) completed this survey. The majority of participants (90-98% and 86-100%) rated the health and cultural competencies and food and nutrition competencies as “Important” respectively. Overall, the competency related to identifying health status was ranked highest by 78% of participants whereas the competency pertaining to developing culturally appropriate recipes was ranked lowest by 83% of respondents. Nearly all participants (95%) believed that all RDs and graduating dietetic interns should be minimally competent in Aboriginal health and culture.

**Implications and Conclusions:** The 11 draft competencies for dietetic interns (seven minimum and four advanced) were focused to include six minimum and two advanced competencies. These results will inform both RDs working with Aboriginal peoples and the refinement of NODIP intern and preceptor tools, with the potential to integrate this curriculum across Canadian dietetic internship programs.

**Title: Trial of a malnutrition screening tool upon admission in the adult acute care tertiary hospital setting**

Sarah Smith and Michelle Riva, Hamilton Health Sciences Dietetic Internship Program, Hamilton, Ontario

**Objectives:** According to current literature, approximately 45% of patients admitted to Canadian hospitals are malnourished. The purpose of this trial was to determine whether a screening tool implemented upon admission could increase the number of dietetic consults. Ultimately, to determine whether more patients at high-risk for malnutrition are identified as a result from the tool and increase in dietetic consults.

**Methods:** This was a quality improvement initiative implemented on adult inpatient medicine wards at the Hamilton General Hospital. Initially, an audit was completed for a 4-week period, in which, the number of dietetic consults received through a medical information technology system (Meditech) were recorded. Once this was completed, the tool was implemented for a 4-week period and was completed by nursing staff during their initial assessment of each newly admitted patient. The questions on the screening tool were asked within 24-hours of a patient's admission and prompted answers surrounding decreased appetite for 1 week or unintentional weight loss in the past 6 weeks. If a patient answered yes to either one of the two questions, a dietetic consult was generated through Meditech.

**Results:** Compared to 18 dietetic consults received through Meditech during the audit period, 37 dietetic consults were received during the trial of the tool. Approximately 70% of the dietetic consults generated during the trial period were due to patients who screened positive for malnutrition risk on the tool. In total, the tool resulted in an additional 26 dietetic consults.

**Implications and Conclusions:** An implication of our study is that we only compared the number of dietetic consults entered into Meditech for both the 4-week audit and trial periods. We did not take into account possible verbal referrals received by the dietitian at rounds or through conversations with other health professionals. In conclusion, the implementation of the screening tool resulted in more dietetic consults and earlier dietetic involvement in patient care as well as raised awareness about malnutrition in hospitalized patients.

**Title: Community services addressing food insecurity in Halifax immigrant populations: Piece of home**

Sheree Gopie, Acadia University, Wolfville, NS

Catherine Morley, Acadia University, Wolfville, NS

**Purpose:** The purpose of this two-part project was to understand the experience of food insecurity in immigrant populations in adapting to food systems within Canada, and to discover community services in Halifax, NS to address these experiences.

**Process or Content:** A literature review was conducted to identify the issues and barriers to food access in immigrant populations in Canada. An online search was conducted for community programs and services in Halifax to address food insecurity, particularly for immigrant groups.

**Project Summary:** Consuming foods connected to one's country of origin is important, particularly for passing on culture and traditions to younger generations. Challenges to food security in immigrant populations are issues accessing nutritious, acceptable, culturally-appropriate food, and restrictions owing to low socioeconomic status that reduces the ability to purchase desired foods. Immigrant populations in Halifax welcome and participate in initiatives such as community gardens to grow native foods as growing food together connects community members and new families, fostering relationship-building while addressing food insecurity. These programs facilitate positive adaptation to local foods within Canada and maintenance of ties with participants' countries of origin. Participation in these programs is of minimal cost, and enable gardening and food skill development.

**Recommendations & Conclusions:** Creating educational tools and resources support immigrant groups to make informed healthy food choices and to enhance food literacy. Municipal government promotion of community services helps address food security and supports new arrivals to Canada. Continued information gathering on food insecurity with focusing on the experiences of displaced individuals (such as refugees in Halifax and communities where immigrants settle) will enhance further development of community initiatives and services.

**Title: Clinical dietitians' perceptions of a fully electronic, singular patient record in Island Health**

K Hilverda<sup>1</sup>, J Abele<sup>1</sup>, K Boschung<sup>1</sup>, A Brisco<sup>1</sup>, A Connors<sup>1</sup>, T Kafka<sup>1</sup>, J Le Patourel<sup>2</sup>

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**Objectives:** IHealth is an electronic health record (EHR) developed to replace the hybrid (paper and electronic) medical health record across Vancouver Island. Implementation of IHealth is to occur via a progressive rollout across various sites throughout 2016. Major adjustments for clinical registered dietitians (RDs) include using the EHR for interprofessional communication, finding patient information, managing caseloads, and documentation. This study aimed to identify RDs' perceptions of the major challenges and benefits IHealth may bring.

**Methods:** An original online survey was developed and distributed to all eligible Island Health clinical RDs using REDCap (Research Electronic Data Capture). Closed-ended questions were analyzed using descriptive statistics, and open-ended questions were categorized by emergent themes.

**Results:** Most respondents indicated a lack of knowledge of or exposure to IHealth. Additionally, many RDs chose "Neutral" or "I don't know" when asked to agree or disagree with statements about IHealth. Participants perceived that efficiency of documentation, ease of access to information, and accuracy will be improved, and they agreed that quality of patient care would not suffer from the implementation of IHealth. RDs expressed concerns that documentation in electronic forms will restrict their ability to communicate the full context of a patient's care and that technical difficulties will negatively impact their ability to access information. Themes that emerged as benefits were accessibility, efficiency, continuity of care, and accuracy. Major themes that emerged as challenges were training, communication, availability of equipment, and technology issues.

**Implications & Conclusions:** Island Health RDs expressed that IHealth will bring both challenges and benefits. Many key issues identified have already been addressed. This current lack of knowledge about IHealth among RDs will be mitigated by training. Management will be given recommendations to address RDs' concerns and knowledge deficits prior to implementation of IHealth in the remainder of the health authority.

**\*Title:****Food variety in Canadian long-term care homes**

Christine Lagacé\*<sup>1</sup>, Natalie Carrier<sup>1</sup>, Lita Villalon<sup>1</sup>, Heather Keller<sup>2</sup>, Christina Lengyel<sup>3</sup>, Susan Slaughter<sup>4</sup> *Université de Moncton, Moncton NB<sup>1</sup>; University of Waterloo, Waterloo ON<sup>2</sup>; University of Manitoba, Winnipeg MB<sup>3</sup>; University of Alberta, Edmonton AB<sup>4</sup>*

**Purpose:** To determine the range of food variety offered by diverse Canadian long-term care (LTC) homes and if this variety is associated with dietary intake of residents.

**Process:** Menus from 29 LTC homes in four provinces (Alberta, Manitoba, New Brunswick and Ontario) that participated in the Making the Most of Mealtime (M3) study were available for analysis. Each unique item offered on the menu was counted for a daily and weekly variety score. Menu items were also categorized according to Canada's Food Guide (CFG) food groups. Dietary intake of 20 residents from these 29 homes (n=580) was assessed by weighing and observing intake over three non-consecutive days including one weekend day. Food Processor software (ESHA Research) was used to determine average caloric intake per day.

**Project Summary:** Participants' average age was 86.7±7.9 years; 68% were women and 64% had dementia. Half were eating a regular textured diet and average daily energy intake was 1567±426 calories. Preliminary results of menu analysis show that average daily food variety score was 24±5.7 and average weekly food variety score was 78±16.8. Food variety scores were highest in Ontario (daily=29±2.5 and weekly=102±11.0) and lowest in New Brunswick homes (20±2.9 and 63±7.5, respectively). Participants' average energy intake was also highest in Ontario (1622±430 calories) and lowest in Manitoba homes (1503±406 calories). Of the CFG groups, weekly variety scores was highest in the Vegetable & Fruits group (29±8.8), followed by the Grain Products group (15±4.5), Meat and Alternatives group (13±2.6); and the Milk and Alternatives group (5±2.1).

**Recommendation & Conclusions:** To our knowledge, food variety offered in LTC homes and its association with food intake has never been studied. Results will help LTC homes develop menus that offer sufficient food variety and are tailored to residents' needs and preferences.

**Title: Client-centered interprofessional collaboration: Opportunities and barriers for dietitians**

*Y Cai, C Morley, School of Nutrition and Dietetic, Acadia University. Wolfville, NS  
Canada*

**Purpose:** The purpose of this project was to conduct a literature review to identify opportunities for and barriers to dietitians' interprofessional collaboration (IPC), and ways health care providers, including dietitians, can collaboratively enhance patient-centred care.

**Process or Content:** Literature from Dietitians of Canada, the Canadian Interprofessional Health Collaborative, the Partnership for Dietetic Education and Practice, Practice –based Evidence in Nutrition, and Medical Education Online was reviewed. Opportunities and barriers were categorized.

**Project Summary:** Interprofessional collaboration is the key to patient-centred care. Patient and family involvement in the planning, implementation, and evaluation of care is a cornerstone of patient-centred interprofessional collaboration. Opportunities are that collaborative interaction and learning contribute to cognitive and behavioural changes by familiarizing participants with the language used by and mindset of others, and acknowledging each profession's contribution to optimize outcomes. There is an overlap between dietetic and collaborative competencies; this allows dietitians to practice more effectively in collaborative teams. Barriers are lack of understanding of roles and responsibilities between health professionals, insufficient collaboration between other health care professionals and dietitians, and the lack of managerial and structural supports for IPC. Last, but not least, consideration must be given to professionals' attitudes, values, power relationships, and socialization patterns.

**Recommendations and Conclusions:** Clear interprofessional communication with role clarification, collaborative leadership, and learning opportunities will support patient and family access to appropriate health care providers to optimize opportunities for evidence-informed decision-making.

**Title: Supporting childhood nutrition in northern British Columbia: Registered dietitians' experiences and learning needs**

Tamara Grafton (UBC Dietetic Intern)

Karli Nordman (UBC Dietetic Intern)

Courtenay Hopson (Chief Clinical Dietitian, UHNBC, Prince George, BC)

Carly Phinney (Clinical Dietitian, UHNBC, Prince George, BC)

Lise Luppens (Population and Public Health Dietitian, Northern Health, Terrace, BC)

**Objectives:** To gain an understanding of the roles that northern British Columbia (BC) registered dietitians (RDs) currently play in supporting childhood nutrition and to explore their confidence and professional learning needs in supporting these requests.

**Methods:** An original, electronic cross-sectional survey was developed and distributed to RDs living in northern BC (n=55). Data was collected using *Qualtrics LLC™*. Due to a low response rate (RR) at the end of the two-week data collection period, a post-activity approval amendment was submitted to the UBC Behavioural Research Ethics Board to open the survey for an additional week. However, due to a delay in ethics approval and the timeline of the project, the survey was not re-distributed and data collection was considered complete.

**Results:** The survey had a RR of 4% (n=2). Of the two surveys submitted, one was incomplete and did not contain any qualitative data. Therefore, the data was not analyzed as it would not have been possible to extrapolate the findings to the target population due to nonresponse bias.

**Implications & Conclusions:** Due to a lack of useable data and results, conclusions could not be made surrounding northern BC RDs and their role in supporting childhood nutrition. This study mirrors the growing trend in declining RRs among allied health professionals to online surveys. Possible explanations for the low RR in this study include the single-mode format of data collection (i.e. online), use of a third party for distribution of the survey, lack of incentive to participate in the survey, length and design of the survey, and lack of time to complete the survey. Future intern-led research projects should consider directly contacting research participants either by mail or phone, using mixed modes of data collection such as online and mail, and providing an incentive for participation in order to increase RRs.

**Title: A description of oncology patients who are at risk for malnutrition upon admission at the BC Cancer Agency Vancouver Centre**

Elizabeth Powell and Silbi Kim - University of British Columbia Dietetics Program

Ryna Levy-Milne and Satnam Sekhon - BC Cancer Agency, Vancouver Centre

**Objectives:** All new patients at BC Cancer Agency (BCCA) complete a self-reported, validated Nutrition Screening Tool (NST) assessing involuntary weight loss and appetite status. Higher NST scores indicate greater risk of malnutrition. Dietitians triage patients scoring 3-5 on the NST. The purpose of this study is to describe the patient population who score a 3-5 at the BCCA Vancouver Centre.

**Methods:** A retrospective chart review was conducted on patients scoring 3-5 on the NST between September 1 and December 31, 2015. NST and CAIS (Cancer Agency Information System) information for demographics, medical history and nutrition intervention were collected and analyzed for frequency distribution using Excel.

**Results:** Of the total 127 patients, 78 (61%) scored 3, 34 (27%) scored 4 and 15 (12%) scored 5. The three most frequent cancer diagnoses were post-pyloric gastrointestinal (29%), lung (15%), and head and neck/esophageal (14%). Thirty-six (28%) patients received nutrition counseling, leaving 91 (72%) not consulted by a BCCA RD. Thirteen (10%) were referred to HealthLink BC. The three most frequent reasons for not receiving a nutrition consultation were: no further treatment at the Vancouver Centre (19%), patient not interested (16%), and nutrition consultation not necessary as per RD discretion (14%). In the NST 3 group, 19 (24%) patients answered unsure to losing weight involuntarily. Of these, only three received a nutrition consultation. Dietitians triaged 38%, 29% and 27% of the NST 3, 4 and 5 patients, respectively, within time allotted for standards of practice.

**Implications & Conclusions:** Patients scoring 3 on the NST due to marking unsure to involuntary weight loss may not need to be triaged. Additional research into this group may provide insight to help improve current triaging procedures, efficiency, and patient care. Further investigation is needed to determine the barriers to meeting current standards of practice for triaging patients at high risk for malnutrition.



**Title: Prevalence of Metabolic Syndrome Risk Factors in Patients on Acute Care Mental Health Units**

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**Objectives:** To describe the prevalence of metabolic syndrome (MetS) and its risk factors in acute care mental health patients in St. Paul's Hospital (SPH).

**Methods:** A retrospective chart review was completed for a random sample (N=255) of acute mental health patients at SPH from June 1, 2014 to October 31, 2015. Data were collected on demographic characteristics (age, sex), anthropometrics (weight, height), psychiatric diagnosis, and MetS risk factors (hypertension (HTN), elevated triglycerides (TG), low high density lipoprotein (HDL), impaired fasting blood glucose (FBG)). Data analysis was completed using descriptive statistics.

**Results:** The mean age of the patients was 41 years (SD=13.9). There were 147 males (58%), 106 females (42%) and 2 transgendered patients (0.8%). Schizophrenia and other psychotic disorders (n=133, 52%) was the most common psychiatric diagnosis, followed by bipolar disorder (n=53, 21%), depressive disorder (n=27, 11%), and substance-related and addictive disorders (n=23, 9%). The mean FBG, TG, and HDL were 5.39 mmol/L (SD=1.09), 1.17 mmol/L (SD=0.77) and 1.37 mmol/L (SD=0.42), respectively. A greater proportion of individuals  $\geq 65$  years had FBG, HDL, and HTN risk factors than individuals  $< 65$  years. The prevalence of MetS was greatest for individuals  $\geq 65$  years, with 25%, compared to 7%, 4%, 2%, and 5% for ages 50-64, 30-49,  $< 30$  years, and the total population, respectively. Lastly, the prevalence of individuals with at least one MetS risk factor was highest for bipolar disorder (81.1%), substance-induced psychosis (73.9%), and schizophrenia (63.2%).

**Implications and Conclusions:** We found an increasing number of MetS risk factors with increasing age, however, the prevalence of MetS was likely underestimated due to missing waist circumference. Screening older patients for MetS risk factors can serve as a preventative measure. Further research investigating MetS in this population will help guide the design and implementation of nutrition care plans, clinical practice guidelines, resource allocation and policy changes.

**Title:** **Are clients identified with nutrition-related risk factors by the interdisciplinary team using the community Initial Assessment Tool being referred to a Community Registered Dietitian: a retrospective chart review**

Sabrina Lauser - UBC Vancouver Coastal Dietetic Internship

Emily Ko - UBC Vancouver Coastal Dietetic Internship

Gina Willson - UBC Vancouver Coastal Dietetic Internship

Connie Zhou - UBC Vancouver Coastal Dietetic Internship

**Objectives:** To determine the number of clients with nutrition-related risk factors according to the Initial Assessment Tool (IAT) at three community health centres in Vancouver (Pacific Spirit, Raven Song, and South) between April 1 - May 21, 2015 and to determine if clients identified with nutrition-related risk factors were referred to a Community Registered Dietitian (RD).

**Methods:** A retrospective chart review of 249 Primary Access Regional Information System (PARIS) charts was conducted. Using an excel spreadsheet, the following variables were collected from the IATs: skin integrity, bowel management, chronic disease management, weight changes, dysphagia management, and eating habits. For clients with at least one nutrition-related risk factor documented, it was noted whether a referral was made to a Community RD and by whom.

**Results:** 87 (35%) IATs were complete and had at least one nutrition-related risk factor. In total, only 5 (6%) referrals were made to an RD. Raven Song had the highest number of referrals to an RD n = 4 (16%), followed by Pacific Spirit n = 1 (4%), then South n = 0 (0%). The most common nutrition-related risk factors were chronic disease n = 55 (64%), skin integrity n = 43 (49%), and bowel management n = 26 (30%). None of the clients referred were identified as having difficulties with dysphagia management, even though 10 clients (11%) were identified with dysphagia as a nutrition-related risk factor. Nurses completed the majority n = 52 (60%) of IATs.

**Implications & Conclusions:** IATs were often not completed within the allotted time frame of initial visit. 82 (94%) clients were not referred to an RD despite having nutrition-related risk factors. There is a role for improved malnutrition screening, staff education, and IAT revisions to include guidelines for making referrals to an RD. Further research is needed as the study was limited due to a smaller sample size than anticipated.

**Title: Screening and prevalence of malnutrition risk on admission to inpatient units at Richmond Hospital**

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UBC Dietetics Program, Vancouver, BC

**Objectives:** To determine the proportion of patients deemed to be at risk for malnutrition upon hospital admission using the “Questions About Your Health” screening tool (QAYH) and the number of patients seen by a Registered Dietitian (RD).

**Methods:** A retrospective chart review was conducted on 146 inpatients on two wards (one medical, one surgical) at Richmond Hospital in Richmond, British Columbia from January 30-February 26 2015. QAYH risk for malnutrition score, referrals to a RD generated from an “at-risk” score, and number of patients seen by a RD were collected.

**Results:** Seventy five percent (n=109) of patient charts included a QAYH. Charts without a QAYH (n=37) were then excluded from the study. Of the charts with a QAYH, 97% (n=106) had the nutrition section completed, 17% (n=18) were deemed at risk for malnutrition, 11% (n=12) had referrals to a RD, but 17% (n=2) of referred patients were not seen by a RD. A RD saw 31% (n=34) of patients independent of referrals based on QAYH score. Sixty one percent (n=11) of at-risk patients were not seen by a RD, and 78% (n=14) were not referred.

**Implications & Conclusions:** The majority of charts analyzed included a QAYH screening tool and a completed nutrition section. Only a small proportion of patients were deemed at risk for malnutrition by QAYH. Of these patients, only a small proportion were referred to and seen by a RD, likely due to rapid patient turnover or inadequate RD referrals. The limited number of referrals may relate to the burden of paperwork for staff and need for a simplified referral process. The results may inform stakeholders of the prevalence of untreated malnutrition risk, which correlates to increased mortality rate, length of stay, incidence of complications and risk of readmission.

**Title: Pilot study to evaluate caloric tracking methods for post-bariatric surgery patients**

Anne-Marie Dolinar and Michelle Dyck, Northern Ontario Dietetic Internship  
Kerri Loney, MEd, RD, Health Sciences North, Sudbury, ON

**Objectives:** This pilot will determine the feasibility to conduct a larger, prospective study to establish caloric intake recommendations for post bariatric surgery patients. The purpose is to evaluate different methods of tracking dietary intake related to recording accuracy, compliance, ease of use and time commitment.

**Methods:** Eight participants were recruited at their one-month bariatric surgery post-op appointment and asked to complete food records using a tracking method of their choice (mobile app or paper/pencil) until their three-month follow-up appointment (seven to eight weeks total). Food records will be reviewed for completion to determine participant compliance. The most complete week of food records will be entered into eaTracker<sup>®</sup> by the co-investigators to compare all methods of tracking to a standard measure and establish any variance. eaTracker<sup>®</sup> was developed by Dietitians of Canada and uses nutrient data from the Canadian Nutrient File. Quantitative measures of ease of tracking and the time commitment required will also be gathered at the three-month follow-up appointment through a standardized guide of questions asked to each participant. All results will be compiled and analyzed using Microsoft Excel<sup>®</sup>. Research Ethics Board (REB) approval was granted from HSN.

**Results:** Final results are pending.

**Implications & Conclusions:** Challenges to this study included incomplete patient food records (e.g. portion sizes) making it difficult to input data into eaTracker<sup>®</sup>, and many food products are missing from its database. Conclusions are limited regarding the accuracy of various apps due to the small sample size and limited number of participants who used them. Future studies should include check-in phone calls with participants to ensure they have started tracking their intake, answer any questions they may have, and clarify expectations. Another pilot will be needed to further test the recommended methodology including variables and data collection processes.

**Title:           The relationship between periodontal disease and cardiovascular disease**

Jacqueline Dubeau, Acadia University, Wolfville, N.S., Bachelor of Science in Nutrition

Catherine Morley, Acadia University, Wolfville, N.S., Head of Nutrition Department

**Objectives;** The purpose of this project was to conduct a literature review in order to understand the proposed connections between periodontal disease and risk of cardiovascular disease.

**Methods;** Literature from Canada, America, and the United Kingdom, were reviewed to determine the accepted physiological mechanism of how periodontal disease contributes to cardiovascular disease. Journal articles from the Journal of Periodontology, Evidence Based Dentistry, and The Journal of Internal Medicine were reviewed. The Journal of the American Dental Association was reviewed to understand the opposed positions on the pathophysiological mechanism. Search terms used in research included periodontal disease, cardiovascular disease, and pathophysiology. The information was organized into the following sections: pathophysiology, common risk factors between the two diseases, and implications.

**Results;** Periodontal bacteria enters the circulatory system via endothelial injury which allows the secondary pathogen byproducts, platelet-aggregating proteins, to directly contribute to the formation of the thrombogenic atherosclerotic plaque resulting in narrowed arterial walls. This pathophysiological mechanism is not universally accepted because of potential coincidental risk factors between the conditions (smoking, poor diet, age, and sex). Therefore, comparisons of the common risk factors between periodontal disease and cardiovascular were explored. The implications were that most studies determined an association between periodontal disease and cardiovascular disease. However, there are varying opinions on the relationship and it is evident that more research is necessary to evaluate it.

**Implications and Conclusions:** Awareness of this issue will help nutrition professionals better inform and assess individuals at risk. The connection between oral health and systematic diseases is not prioritized and should be viewed as an important area of public health. Testing for periodontal disease simultaneously with cardiovascular disease may help further the research and act as a preventative measure for further decline. It is crucial that health professionals pay attention to the future development of this.

**Title: Nutritional adequacy of customized residential care menus: Dietetic Intern research project**

*L da Silva RD<sup>1</sup>, N Byrom RD<sup>1</sup>, M Chow<sup>2</sup>, F Huynh<sup>2</sup>, T Kafka<sup>2</sup>, D McKay<sup>2</sup>, T Moffitt<sup>2</sup>, J Seto RD<sup>1</sup>, A Tse RD<sup>1</sup>, B Woodburne RD<sup>1</sup>. <sup>1</sup>Fraser Health Authority, Food and Nutrition Services, Surrey BC; <sup>2</sup>UBC Dietetics Program, Vancouver BC*

**Background:** Fraser Health (FH) standardized residential care (RC) menus are based on Canada's Food Guide, which is designed for healthy individuals > 50 years. The average age of those in FH RC is > 80 years. It is unknown if customization of these menus to accommodate individual preferences and therapeutic requirements compromises their nutritional adequacy.

**Objective:** To examine the protein, riboflavin, fibre, vitamin D, folate, and calcium content of customized FH RC menus and compare it to the respective Recommended Dietary Allowance (RDA) and Adequate Intake (AI) values.

**Methods:** The micronutrient content of the 28-day electronic customized menus of 426 residents was analyzed using CBORD<sup>®</sup> and Excel<sup>®</sup>. The analysis included meals, therapeutic snacks and oral nutrition supplements.

**Results:** The mean age of those whose menus were analyzed was 86 years (Standard Deviation 7 years, range 71-105 years). The proportion of menus meeting the RDA for protein and riboflavin was 99.8% (n=425) and 99.3% (n=423). The majority of menus did not meet the RDA/AI for fibre (82.9%, n=353), folate (96.5%, n=411) and vitamin D (99.5%, n=424). Nearly half (45%, n=189) did not meet the RDA for calcium.

**Implications & Conclusions:** Almost all customized menus are nutritionally adequate in protein and riboflavin. The menu inadequacy in fiber may contribute to constipation which is a frequent problem in the geriatric population. The calcium content of the menus is of concern given the high prevalence of osteoporosis. Few menus met the RDA for folate, which may present a risk for macrocytic anemia. However, it is unknown if calcium and folate needs are being met through supplementation. Almost no menus met the RDA for vitamin D. These findings may help dietitians justify micronutrient supplementation and inform revisions of the standardized FH RC menu.

**Title: Piloting an outcome evaluation tool for Adventures in Cooking!**

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**Introduction:** Adventures in Cooking! (AIC) is a community-based cooking program for children ages 8-12 that aims to augment children's food preparation skills and cooking confidence, while encouraging healthy eating and the acceptance of new foods.

**Objective:** To pilot an outcome evaluation tool to measure the change in food preparation skills and cooking confidence of AIC participants.

**Methods:** A convenience sample of eight participants were recruited with parental consent, who are clients involved in Big Brothers Big Sisters of North Bay and District. A 15-item pre- and post-questionnaire was designed to measure participant outcomes, which were analyzed in Excel<sup>®</sup> (2013) using frequencies to compare interventions. A six-item qualitative component was added to the post-test to further evaluate the program. Observational data was obtained from the facilitator and parents through informal discussions. Ethics approval for the AIC study design and evaluation tool was obtained through the Public Health Ontario Research Ethics Board.

**Results:** A positive impact was illustrated from the pre- to post-intervention on the food preparation skills and cooking confidence of AIC participants; however the amplitude of change was not as predicted. Although quantitative data did not express a significant change, a visible increase in food preparation skills and cooking confidence was observed and reported by the facilitator and parents.

**Implications & Conclusion:** The discrepancies between quantitative and qualitative results suggest the evaluation tool may need modifications to accurately measure intended outcomes and improve validity and reliability. A subsequent pilot of the revised evaluation tool will be required prior to implementing a full-scale evaluation of AIC.

**Title: Evaluation of patient satisfaction with nutrition education strategies at a community dialysis unit**

Minja Milic, University of British Columbia (UBC) Dietetic Intern

Roberta Wozniak, University of British Columbia (UBC) Dietetic Intern

**Objectives:** Nutrition education is imperative for the management of renal disease. Patients undergoing hemodialysis are at an increased risk of inadequate dietary intake, related to an increased loss in nutrients, higher overall requirements, and renal diet restrictions. Patient perceptions of the various nutrition education strategies at the Richmond Community Dialysis Unit (RCDU) were unknown. The purpose of the study was to describe patient satisfaction with the nutrition education strategies at the RCDU.

**Methods:** All patients at RCDU were invited to complete an anonymous paper survey containing a mixture of Likert-scale, open-ended, and demographic questions. Participants were given approximately two weeks to complete the survey. Descriptive statistics were used to analyze the data.

**Results:** Twenty-nine (n=29) participants completed the survey (response rate: 55%), with 19 participants 65 years of age and over, 8 participants less than 65 years, and 2 participants' ages were unknown. Duration on hemodialysis ranged from less than 1 year (n=9), 1-5 years (n=11), and more than 5 years (n=6). Respondents who indicated they were satisfied or very satisfied were as follows: frequency of speaking with the dietitian about nutrition (n=19 out of 28), information received from the dietitian (n=22/29), taste testings (n=7/12), nutrition posters (n=12/22) and the coffee cart service (n=14/19). Common suggestions for improvement included providing more frequent nutrition posters, education around label reading, sources of phosphorous and potassium, holiday recipe ideas, and speaking with the dietitian about nutrition more often.

**Implications and Conclusions:** The majority of the survey respondents indicated that they were overall satisfied with the nutrition education provided at the RCDU. In addition, valuable information regarding how to further improve services offered was attained. The results of the survey will help guide the dietitian at the RCDU in the development and improvement of future education strategies.



**Title: Acute food intake effect of hemp protein (A FINEH Protein) trial**

Adrienne Cardillo, Rebecca Mollard, Dylan S. Mackay, Peter J.H Jones

**Objective:** The objective was to examine acute effects of hemp protein consumption on food intake at an *ad libitum* meal, as well as on appetite and blood glucose responses before and after the meal, compared to soybean protein and a carbohydrate control.

**Methods:** In a repeated-measures randomized crossover trial, adults (n=27) consumed a fruit shake with (1) 40g of hemp protein (hemp40), (2) 20g of hemp protein (hemp20), (3) 40g of soybean protein (soy40), (4) 20g of soybean protein (soy20), or (5) carbohydrate control. Food intake was measured at a pizza meal 60 min after shakes were consumed. Appetite, and blood glucose concentrations were measured repeatedly from 0-60 min and 80-200 min following shake consumption.

**Results:** Blood glucose was affected by treatment ( $p<0.0002$ ), time ( $p<0.0001$ ) and time-by-treatment ( $p<0.0001$ ) at 0-60 and 80-200 min. In a dose dependent manner, protein treatments led to lower 0-60 min blood glucose overall mean, and area under the curve (AUC), compared to control ( $p<0.05$ ). In contrast, although hemp40 and soy40 led to a lower overall mean blood glucose compared to control from 80-200 min, while all protein treatments led to higher 80-200 min blood glucose AUC compared to control in a dose dependent manner ( $p<0.05$ ). Treatment ( $p<0.05$ ) and time ( $p<0.0001$ ), but not time-by-treatment, effects were seen for appetite at 0-60 and 80-200 min. From 0-60 min, hemp40 had higher overall mean appetite ratings compared to soy20 and control, whereas over 80-200 min soy40 had higher ratings compared to control. No differences in appetite AUC, food intake or blood pressure were seen.

**Implications and Conclusions:** These data suggest that hemp protein, similar to soybean protein, dose dependently leads to lower post-prandial blood glucose compared to a carbohydrate control.

Funded by ARDI, Manitoba Harvest

**\*Title:****Have you been snacking? Acute effects of extruded pulse snacks on glycemic response, appetite, and food intake in adults**

Alie Johnston BA University of Manitoba MSc. Student

Rebecca C Mollard PhD University of Manitoba

Nancy Ames PhD Agriculture and Agri-Food Canada

Julianna Curran PhD Pulse Canada

Danielle Bouchard PhD CEP University of New Brunswick

Peter JH Jones PhD University of Manitoba

**Objectives:** To assess the effects of replacing corn with pulse ingredients in extruded snacks on post-prandial glycaemia, satiety, and food intake.

**Methods:** In a randomized, repeated-measures crossover trial, adults (n = 26) consumed extruded snacks (50g) made with: 1) whole grain yellow pea flour, 2) split yellow pea flour, 3) green lentil flour, 4) chickpea flour, 5) pinto bean flour, and 6) corn flour (control). Participants attended one session per week. Pulse flours replaced 40% of corn flour, while the control was 100% corn. Food intake was measured at a pizza meal over 120 min. Blood was drawn by intravenous catheter and serum blood glucose concentrations were determined. Participants completed validated visual analog scale questionnaires to measure subjective appetite. Appetite and blood glucose levels were assessed pre-pizza (0-120 min) and post-pizza (140-200 min).

**Results:** Pinto bean and chickpea snacks led to 20-40% lower ( $p < 0.05$ ) pre-pizza blood glucose net area under the curve, compared with control, whole yellow pea and green lentil snacks. The effects on blood glucose at specific time points were dependent upon pulse type. At 30 min, blood glucose was lower ( $p < 0.05$ ) after pinto bean compared to green lentil snacks, whereas at 45 and 60 min, pinto bean led to lower blood glucose compared to whole yellow pea snacks. No differences were observed between treatments in post-pizza blood glucose, food intake or appetite.

**Implications and conclusions:** These findings indicate that health benefits of replacing corn with pulse flours in extruded snacks on blood glucose are dependent on pulse type. This trial supports the use of pinto bean and chickpea flours in extruded products designed to improve glycemic control. The production of pulse flour snacks would allow consumers to enjoy pulses in a readily available form. Funded by APG and SPG.

**Title: Micronutrient content of enteral nutrition prescribed by dietitians for acutely ill patients**

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**Background:** Dietitians prescribe enteral nutrition (EN) based on patient macronutrient requirements but it is unclear if micronutrient needs are met. The products being examined are manufactured based on the recommendations for a 31-50 year old male. However, this “reference” person is younger than the average Fraser Health Authority (British Columbia) acute care patient.

**Objective:** To compare the vitamin D, calcium, folate and magnesium content of dietitian-prescribed EN with their Dietary Reference Intake targets.

**Methods:** Randomly selected hospitalized medical records (N=357) with a dietitian EN prescription were retrospectively reviewed. Adult acute care patients fed exclusively with the two most commonly prescribed EN formulas (Isosource HN® and Resource 2.0®) were examined. Micronutrient composition of prescriptions were analyzed using the manufacturer’s composition data and Excel®.

**Results:** 194 EN prescriptions met the inclusion criteria. The mean age of patients was 70 years ± 15.7 years (range 21-96 years). No EN prescription met the Recommended Daily Allowance (RDA) for vitamin D. The RDA for calcium was not met in 65.2% (n=43) of prescriptions for Resource 2.0® versus 8.6% (n=11) for Isosource HN®. The proportion not meeting the RDA for folate for Resource 2.0® and Isosource HN® was 47% (n= 31) and 55.5% (n=71) respectively. The Tolerable Upper Intake Level (UL) was exceeded for magnesium in the majority of Resource 2.0® and Isosource HN® prescriptions (87.9% (n=58) and 75.8 % (n=97) respectively).

**Implications & Conclusion:** EN prescriptions did not always meet the micronutrient targets established for healthy individuals for vitamin D, calcium and folate. This may contribute to deficiencies especially in those with increased micronutrient needs due to illness. The implication of exceeding the UL for magnesium is unclear and warrants further investigation. These findings may increase clinician awareness regarding the need to consider micronutrient composition of prescribed EN and may inform the need for supplementation.

**\*Title:****The nutritional intake of elderly clients receiving Meals on Wheels**

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**Objectives:** Meals on Wheels (MOW) services are a valuable community service targeted at some of our most nutritionally vulnerable in our community. Research into MOW services is scarce, particularly in the last two decades as we face significant changes in food provision and increasing rates of obesity and related comorbidities in the general community. This project therefore aimed to investigate the nutritional intake and meal consumption patterns of MOW clients.

**Methods:** A total of 83 clients, were recruited to participate, less than 10% of the client base from nine participating services. Data collection included nutritional intake (24-hour recalls recorded during face-to-face and phone interviews) associated with food eaten at and outside the home (semi-structured interview).

**Results:** The average age of the 83 participants was  $79 \pm 11$  years with 48% being male. On average, participants consumed  $7,009 \pm 2,129$  kJ and  $69 \pm 20$  g protein per day. Relative to individual energy and protein requirements, 40% and 42% of participants met their requirements respectively. In this study, MOW meals contributed  $32 \pm 13.7\%$  energy and  $20.2 \pm 16.7\%$  protein intake. Relative to the state standards<sup>1</sup> which state a MOW meal should provide one-half of the proteins and at least one-third of the energy requirement, these results suggest an opportunity for further investigation into the contribution from MOW meals.

**Implications & Conclusions:** This data contributes to our knowledge of eating patterns of older persons living independently in an urban Australian community and our ability to refine nutrition programs to optimise intake and nutritional status. <sup>1</sup>State of Victoria 2013. Department of Health, Victorian Home and Community Care program manual.

**Title: Household & child food insecurity & diet quality of female food bank clients**

Jessica Oickle (BSc) - University of Prince Edward Island (Masters of Applied Health Services Research (candidate)); Northern Ontario Dietetic Internship Program (Graduate Intern-commencing September 2016)

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**Objectives:** 1) To describe household food security levels and dietary quality among Prince Edward Island (PEI) women who utilize food bank services.

2) To assess differences in dietary quality according to severity of food insecurity.

**Methods:** The research design consisted of a cross sectional survey; one-on-one in home interviews carried out to assess food insecurity and dietary intakes of food bank women (n=51). Descriptive statistics (frequency counts, means, standard deviation, medians) were computed for all nutrient, demographic, and health variables. The adequacies of nutrient intakes were assessed by comparing dietary intakes to the Estimated Average Requirement (EAR) for women.

**Results:** There were 67 % of households classified as severely food insecure and 33% considered having moderate food insecurity. Child food insecurity among participant children reached nine out of ten, while nationally rates were one out of six children. There were 45% of PEI participant food bank women who were employed or receiving employment insurance and still needed to use the food bank. The majority (71%) of women reported having a grade 12 education or higher.

**Implications:** Food insecure individuals are more likely to have income restrictions and experience chronic health ailments associated with dietary inadequacies. Individuals who use food banks are extremely vulnerable to dietary inadequacies, due to limited food supply and usage restrictions. Food banks are often a last resort for food insecure families.

**Conclusions:** Results demonstrated that mean and median nutrient intakes of participant women fell below the EAR for calcium, vitamins A, D, E, C, and folate. Also, diet quality was poor and worsened with increasing food insecurity. Having access to healthy and nutritious food is a basic human right. Consuming a healthy adequate diet could reduce chronic disease associated with poor dietary intake.

**Title: Overweight pediatric patient experiences after one appointment with a registered dietitian in primary care: A retrospective chart review**

E Iler MSc, Hamilton Health Sciences Dietetic Internship Program, Hamilton, ON

**Objectives:** Childhood obesity, affecting 1 in 3 children, is increasing and Registered Dietitians (RDs) play an important role in addressing this concern<sup>1,2</sup>. Learning the needs of these patients will help the health care system improve the services and treatment strategies utilized by RDs to meet patient needs. This retrospective chart review examined reported pediatric patient experiences with a RD in primary care, prior to referral to a secondary/tertiary obesity care program.

**Methods:** Patient charts were gathered from those enrolled in an obesity treatment program who had received prior education by a RD. They were examined for patient anthropometrics, diet quality index (DQI), and previous experiences with a RD.

**Results:** The study population consisted of 10 males and 13 females, ages 2 to 17 years (mean 10.4 years). The average BMI was 33.5 kg/m<sup>2</sup> with an average of 47% body fat, which indicates obesity. The average DQI was 4/15 indicating a low quality diet. Prior to enrollment, patients visited a RD in primary care a for mean of 1.7 visits. A positive experience was reported by 26% of participants. Assistance with portion sizes and picky eating were reasons for positive experiences. Reasons for a non-positive experience included food-guide focused appointments, lack of new information, limited RD availability and lack of expertise in pediatrics.

**Implications and Conclusions:** Overweight pediatric patients seeking support from a RD in primary care are often not satisfied with the information provided. Delivering basic nutrition information has not proven to be helpful for many patients. However, with a lack of availability for follow-up, those patients willing to attend future appointments to build on this basic knowledge are not available. Therefore RD availability, knowledge and counselling strategies pertaining to pediatric weight management are crucial to reducing the rate of childhood obesity.

**\*Title:****An analysis of the opportunities and challenges of expanded dietetic internship programs in population and public health: The case of food system-related placements in the community**

Marilyne Petitclerc, RD, Candidate to the Master's of Health Sciences in Nutrition Communication at Ryerson University

Jessica Wegener, PhD, RD, Associate Professor at Ryerson University

**Objectives:** The purpose of this project was to explore the opportunities through which dietetic student interns can attain proficiency across the different performance indicators related to food systems and practices in community-based settings in the area of population and public health.

**Methods:** Firstly, a systematic literature review was conducted to identify examples of community-based settings where undergraduate dietetic students, dietetic student interns, RDs, or other community actors have been engaged in health promotion work in the area of food systems with a focus on population and public health, and where nutrition education related to food systems is delivered. Secondly, individual interviews were conducted with Ontarian Dietetic Internship Program Coordinators to 1) better understand the challenges they face when looking for appropriate settings to support dietetic student training and education in population and public health, and 2) to gather various perspectives on the value of a training module for Practicum Preceptors.

**Results:** A total of 16 peer-reviewed papers were identified and include food system-related activities occurring in a variety of settings, such as community gardens, school settings, community kitchens, and others. The professionals involved in these activities provided nutrition education to community members on a variety of food system-related topics, including food production, food safety, food preparation, healthy food choices, and composting. Challenges reported by Internship Program Coordinators include: lack of community-based settings for population and public health placements; lack of adequate preceptors to supervise these placements; few RDs involved in these non-traditional food system-related settings.

**Implications & Conclusions:** This project's SLR identified promising examples of community settings where hands-on nutrition education concerning food systems-related topics is delivered to community members. This exploratory research and the training module developed for Practicum Preceptors may help address issues faced by Dietetic Internship Program Coordinators when finding settings for population and public health placements for dietetic student interns.

**Title: A comparison of the nutritional composition of cow's milk, goat's milk and plant-based beverages in Canada**

Michelle Gowan, Dietetic Intern, University of Alberta

**Objectives:** The purpose of the research was to: understand the nutritional strengths and weaknesses of cow's milk, goat's milk and plant-based beverages.

**Methods:** Fifteen new plant-based beverages were found at three grocery stores in Edmonton, AB when visited in July 2015. These were added to an existing database of 122 products found during previous visits to grocery stores by Dietitians of the various dairy organizations across Canada. Product name, ingredients and nutrition facts tables were collected for all products for further analysis. Products were categorized by main ingredient (excluding water) and Microsoft Excel was used to calculate mean nutrient content per 250ml of each category.

**Results: Micronutrients:** Of the plant-based beverages and goat's milk identified (n=132), 79% were fortified, however they provided variable amounts of calcium (25 – 30% of the daily value (DV)) and vitamin D (20 – 45% DV) per 250ml. Cow's milk's consistently provides 30% DV of calcium and 45% DV of vitamin D per 250ml. Cow's milk, goat's milk and soy beverage are good sources of potassium with 10%, 15% and 9% of the daily value per 250ml respectively while other beverages studied were not sources of potassium. **Calories and Macronutrients:**

Unsweetened plant-based beverages contain fewer average calories per 250ml (40 – 83 kcal), compared to 250ml of 1% cow's milk (108 kcal). Cow's milk contains high quality protein; plant-based beverages (with the exception of soy beverages) contain 25% of the protein that is found in cow's milk. Sweetened plant-based beverages contain 7 – 12 g of sugar and 28-47% of their calories are from added sugar, comparable or higher than that of chocolate milk (31%).

**Implications & Conclusions:** Cow's milk and goat's milk are nutritionally superior to unfortified plant-based beverages. Fortified plant-based beverages have varying levels of fortification, many have substantially lower protein content and often contain added sugar.



**\*Title:****The REFRESH study: recreation environment and food research experiences from hockey: The influences of recreational food environments on the food choices and food behaviour of adolescent hockey players aged 12 to 15 years**

Susan Caswell

Program: MSc, School of Public Health and Health Systems, University of Waterloo

Current evidence shows that the recreation facility food environments where Canadian adolescents participate in organized sports are unhealthy.

**Objective:** The purpose of this phenomenological study using a modified photovoice method was to explore, from the perspective of adolescent hockey players aged 12-15, the broad social and physical environmental influences of exposure to the recreational food environments on their food choices and behaviours.

**Method:** Twenty-four hockey players aged 12-15 years, playing at a level above house league, were recruited within Ontario to take photographs illustrating their experiences with making food choices around participation in recreational hockey. They interpreted their perceptions, as illustrated in the photographs, in individual semi-structured interviews. Photographs that best represented their experience were shared anonymously in group discussions involving the other participants. The group discussions followed the SHOWeD method. Interviews and group discussions were transcribed verbatim. Thematic analysis of the transcripts followed Colaizzi's process (1978) for phenomenological data analysis.

**Results:** Preliminary analysis indicates that adolescents perceive the food choices available to them in Ontario recreation facilities as unhealthy; the foods available are eaten as a 'treat' and rarely eaten before a game due to the negative impact on play. Themes including food available post game (i.e., in transit), perceptions of healthy foods (i.e., chocolate milk) and healthy food outlets (i.e., subway), the perception that food offerings in recreation facilities are intended for those attending to support the players (i.e., parents, siblings), and coaches' influence have also emerged from the data.

**Implications and Conclusions:** Although no conclusions or recommendations can be offered at this time, as data analysis is ongoing, the REFRESH study results will contribute to a comprehensive understanding of factors influencing adolescents' dietary intake related to exposure to the recreational hockey environment. This understanding could help to inform policy and intervention strategies that support healthy eating behaviours.

**Title: Dietary and Pharmaceutical Strategies for Patients with New Ileostomies**

Courtney Berg, Sarah Bunko, Janell Zahn

Regina Qu'Appelle Dietetic Internship Program

**Introduction:** The purpose of the study was to describe the current dietary and pharmaceutical strategies for patients with a new ileostomy in the Regina Qu'Appelle Health Region through a retrospective chart review.

**Methods:** Sixty-nine charts were reviewed and information on the demographic, multidisciplinary team involvement, fluid balance, labs, and dietary and pharmaceutical management was collected and analyzed.

**Results:** For the 69 admitted patients, the most common diagnosis was rectal cancer (35%) and the average length of stay was 22.6 days. The majority of patients were seen by a surgeon (100%), an ETS nurse (96%), a dietitian (86%), and a physiotherapist (70%). The majority of patients had liquid/loose stools. The most common diets prescribed to patients during their admission were NPO (84%), full fluid (80%), clear fluid (72%), DAT (67%) and low residue (49%). PPI's (78%) and Metamucil (52%) were prescribed to majority of patients at some point during their admission. Vitamin K was the most common supplement prescribed to patients and was given through PN. Out of 45 patients who were readmitted, 13 were readmitted for high fecal output or dehydration. Out of these 13 patients majority were seen by ETS nurses (85%) and dietitians (54%). These patients commonly had liquid/loose stool consistencies. The most common diet prescribed to these patients were DAT (78%), full fluid (29%), and low residue (27%). Vitamin B12 was the most commonly given supplement and majority of patients were prescribed Metamucil and loperamide to improve GI function.

**Relevance & Conclusion:** Findings from this current study suggest standard practices be developed for the dietary and pharmaceutical management of patients with new ileostomies and re-admissions with high ileostomy outputs in the RQHR.

**Title: Nutrition Screening and Assessment Tools in Long Term Care in Regina  
Qu'Appelle Health Region and Sun Country Health Region**

Jennifer Chan, Kayla Rustad, Christina Wist

Regina Qu'Appelle Health Region

**Background:** Routine nutrition screening and nutrition assessment are important to prevent malnutrition from going undetected and untreated in LTC residents. Appropriate screening and assessment tools make this process more efficient and accurate.

**Purpose:** The purpose of this study is to determine the nutrition screening and assessment tools and nutrition indicators used by Registered Dietitians (RDs) in LTC to assess nutritional status of residents in two different health regions.

**Methods:** Nine RDs from Regina Qu'Appelle Health Region (RQHR) and Sun Country Health Region (SCHR) who work in LTC were interviewed over the phone using standardized open-ended questions. The responses were analyzed for common themes.

**Results:** All the RDs in both health regions use some tools that are similar for assessment and some tools that are different. Most RDs experienced challenges with the screening process, mainly due lack of time and staffing. All RDs use a similar process and tool for nutrition assessment. A common concern RDs mentioned was a lack of time or resources to attend to all residents who need nutrition services. Also, there is repetition of indicators for nutrition screening and assessment between the screening tools and assessment tools. Both health regions use nutrition indicators such as: weight, height, dysphagia, lab data, BMI, medical/social history, bowel function, oral health, oral intake, wounds, nutrition-focused physical findings, competence, pertinent diagnosis, diet order, nutritional requirements, meal observation, and self-feeding ability.

**Implications and Conclusion:** The findings of this study suggest that LTC RDs would benefit from a standard shortened screening process and a validated screening tool. More research is needed to learn what other Saskatchewan health regions are doing regarding screening, and assessment in LTC.

**Title: Gestational Diabetes Mellitus (GDM): Lifestyle Interventions of Women Postpartum GDM**

Susie Sun, Allie Smorodin, Paige Hayes, Regina Qu'Appelle Health Region Dietetic Internship Program

**Background:** The Metabolic and Diabetes Education Centre (MEDEC) in the Regina Qu'Appelle Health Region provides outpatient education classes for pregnant women diagnosed with gestational diabetes mellitus. It is unknown what lifestyle changes have been incorporated post partum.

**Objective:** To determine the dietary intakes and weekly physical activity of women with previous GDM diagnosis, who attended MEDEC classes, within 12 months postpartum.

**Methods:** In March 2016, a mail-out package was sent to 70 randomly-selected women who previously attended MEDEC, consisting of a Healthy Eating and Active Living for GDM validated questionnaire. The package also included physical activity questions and a dietary recall.

**Results:** Six questionnaires were returned completed (response rate of 9%). All respondents stated that they were aware that an Oral Glucose Tolerance Test was recommended postpartum and 5 of the 6 had it completed. All participants reported conducting various amounts of physical activity. The average amount of moderate and strenuous physical activity was 95 minutes per week. Generally, all participants met healthy eating guidelines. A trend of low carbohydrate intake (grain and fruit servings) was noticed. When asked what information participants used from their MEDEC education, most noted cutting back on carbohydrate and sugar intake.

**Implications & Conclusions:** Women with a previous GDM diagnosis are generally meeting current recommendations for diet, with room for improvement regarding carbohydrate intake. The participants did not meet the recommendations of 150 minutes physical activity per week, when only moderate and strenuous activities were considered. Due to the low response rate in this study, further research is suggested.