

Internship Research Abstracts - DC Conference – Vancouver - June 8, 2007

Titre : Attentes des clients de la cafétéria de l'Hôpital Régional Dr-Georges- L.-Dumont envers les choix disponibles

Auteurs : L Bijeau, F Kamba, L Lotafe, J Soucy, Programme d'Internat en diététique, Hôpital Régional Dr-Georges- L.-Dumont, Moncton, Nouveau-Brunswick

Objectif: Connaître les impressions de la clientèle de la cafétéria de l'Hôpital Régional Dr-Georges- L.-Dumont par rapport au menu actuel et préciser leurs attentes en ce qui concerne la disponibilité d'aliments santé. **Méthodes :** Des affiches ainsi qu'un message via le réseau de communication interne furent utilisés afin d'aviser les clients que des copies du questionnaire seraient disponibles à plusieurs endroits dans l'hôpital. Quatre cents questionnaires furent distribués et 192 (48%) furent retournés et analysés.

Résultats: Selon les résultats, 90% des répondants veulent davantage de choix santé. Parmi ceux-ci, 85 % veulent du pain à blé entier, 79 % demandent des pâtes alimentaires à blé entier et 78 % veulent du riz entier. De plus, 68 % désirent des mets végétariens, 86 % demandent des viandes maigres, 89 % veulent des aliments faibles en gras et 77 % aimeraient des desserts faibles en gras et en sucre. En ce qui concerne les aliments frits, 27 % préfèrent qu'ils ne soient pas offerts, 58 % en aimerait une fois par semaine, 11% n'en veulent pas plus qu'une fois par semaine.

Conclusion : Les résultats indiquent que les clients aimeraient avoir une cafétéria qui offre davantage de choix nutritifs et sains que ceux offerts à l'heure actuelle.

Title: Nutritional screening and prioritizing methods used in acute care general medicine: is there a more effective method? (Phase One)

Authors: B Fretz, J Hwang, N Maher, J Rabinowicz and M Morris, Sunnybrook Health Sciences Centre Dietetic Internship Program, Toronto, Ontario

Objectives: To describe characteristics of general medicine (GM) nutrition services patient screening and prioritizing methods used by GM dietitians (RDs) in ten Ontario teaching hospitals with dietetic internship programs. To measure perceived effectiveness of screening and prioritizing methods used by GM RDs and to elicit ways that RDs can accurately identify and prioritize patients at highest nutritional risk. This information will assist in creating a tool to distinguish patients most in need of nutritional intervention and may be used by RDs to justify caseload management. **Methods:** A cross-sectional, face-validated survey was administered to RDs working in a GM department in an Ontario teaching hospital with a dietetic internship program to obtain information regarding current screening and prioritizing practices. **Results:** Response rate was 68% (n=17). 71% of respondents performed their own nutritional screening and 88% used a screening process; of these respondents, 100% did not use a validated screening tool. The most common screening variable was admitting diagnosis/type of illness (93%). Of 14 respondents, 100% prioritized screened patients. 61.5% of respondents reported 'need for nutritional support' as most common prioritizing variable. On average, respondents perceived their prioritization method to be 'somewhat effective' (SD = +/- 1.188) and 39% of respondents suggested implementing a standardized tool to clarify current screening and prioritization practices. 44% of respondents reported time and patient volumes as barriers to workload management. **Implications & Conclusions:** Results indicate the need for a tool to help RDs select for intervention patients at highest nutritional risk and to provide a rational, consistent approach in determining appropriate caseload.

Title: Nutritional screening and prioritizing methods used in acute care general medicine: is there a more effective method? (Phase Two)

Authors: B Fretz, J Hwang, N Maher, J Rabinowicz and M Morris, Sunnybrook Health Sciences Centre Dietetic Internship Program, Toronto, Ontario.

Objectives: To establish, pilot and evaluate a tool at Sunnybrook Health Sciences Centre (SHSC) that will guide patient prioritization processes in General Medicine (GM) patients resulting in selection for intervention those patients at highest nutritional risk. It will help to provide Registered Dietitians (RDs) with a rational, consistent approach to patient caseload management. The new prioritization tool may also be used to justify patient selection and demonstrate the need for increased clinical nutrition staff due to large volumes of patients at high nutritional risk. **Methods:** A comparative, exploratory, non-randomized experimental trial will be conducted with the GM RDs at SHSC. A newly developed tool will be piloted for ten working days where the RDs will screen for patients at highest nutritional risk and will prioritize them using this tool. A survey will be re-administered to determine the RDs' perceived effectiveness of the tool, as compared to their usual prioritization methods, in establishing and clarifying caseload and in identifying patients at highest nutritional risk in greatest need of nutritional intervention. A group interview will be conducted with the RDs to assess whether the tool provided relief to their anxieties from the current method of prioritization and caseload management.

Results: Not yet available **Conclusion:** Not yet available

Title: Efficacy of weight goals in adult patients with anorexia nervosa

Authors: E Flengeris, N Smigerowsky, S Warden, D Mager, Capital Health Dietetic Internship Program, Edmonton, Alberta.

Objectives: It is unclear, what percent of patients achieve goal weight and how this influences patient care outcomes in patients with anorexia nervosa. The purpose of this study is to determine the percentage of patients that reach their goal weight set by the medical care team and the duration of time they are able to maintain this weight (over one year) while under the care of the University of Alberta Hospital Eating Disorder program. **Methods:** A retrospective chart review (n=222) was done in female patients (>18 years of age) diagnosed with anorexia nervosa (Restrictor and Binge-Eating/Purging type) at the University of Alberta Eating Disorders Program (January 2004-December 2006). **Results:** Fifty-four patients met the inclusion criteria. At admission, the mean age was 25.4 ± 7.4 years (18.3-47.2), weight 45.1 ± 6.4 kg (31.4-58.5), height 165.2 ± 6.6 cm, and BMI was 16.5 ± 2.3 (12.1-21.5). Twenty-four patients (44.4%) reached 100% of recommended goal; the mean goal weight was 55.3 ± 4.5 kg. Eight patients (14.8%) reached 95-99.9% of recommend goal weight; 11 patients (20.4%) reached 90-94.9% of recommend goal weight and 11 patients (20.4%) reached <90% of recommend goal weight. Sixty percent of those patients who reached 100% of their recommended goal weight, had maintained three months later, where as none of the patients who had achieved less then 100% of recommended goal weight had maintained weight three months later. Availability of data at six and twelve months was largely incomplete and therefore no results could be documented. **Conclusion:** This information is valuable as it may indicate a threshold weight that implicates improved weight maintenance and recovery rates in anorexia nervosa.

Title: Does a physical activity intervention using a pedometer promote a greater change in physical activity levels and anthropometric measures than dietetic counseling alone?

Author(s): H Simpson, K Brunet, D Mager, Capital Health Dietetic Internship Program, Edmonton, Alberta.

Objectives: In Canada, the incidence of childhood obesity has more than doubled over the past decade. There is little information regarding the effectiveness of dietetic counseling, focused on physical activity and diet, in the treatment of childhood obesity. The purpose of this study is to compare the effectiveness of a physical activity intervention (using pedometers) and dietetic counseling with dietetic counseling alone, on changes in anthropometrics, physical activity and dietary intake. **Methods:** This is an open labeled, prospective study that plans to randomize 36 children and adolescents (4-18 years), seen within the Nutrition Services Pediatric Weight Management Program at the Stollery Children's Hospital. Physical activity will be monitored using a Yamax SW-200 DIGIWALKER pedometer over a 12 week intervention period in both groups, however, only subjects in the treatment group (diet counseling and physical activity intervention) will be provided with education to promote increased physical activity (2500 steps/d) q weekly, until age-matched BMI referenced norms are met (girls 12,000 steps/day and boys 15,000 steps/day). **Results:** It is expected that greater changes in anthropometric measures and step counts will be observed in the treatment group (diet counseling and physical activity intervention) than in children receiving diet counseling alone. **Conclusion:** The epidemic of childhood obesity is of great consequences to future generations. The development of simple and effective tools is critical in the prevention and treatment of childhood obesity. This study will help contribute to the understanding of developing the most effective interventions.

Title: Algorithm for treatment of malnutrition in end stage renal disease within the Northern Alberta Renal Program

Author: O. Eng, Capital Health Dietetic Internship and K. Donahue, Capital Health, Edmonton, Alberta.

Objectives: Currently, there is no standardized practice for treating malnutrition in end stage renal disease (ESRD). The purpose of this study is to build an algorithm that identifies the markers of malnutrition in ESRD and the corresponding treatments using existing guidelines and evidence based research. **Methods:** Registered Dietitians (n=10) of the Northern Alberta Renal Program (NARP) will participate in an informal questionnaire evaluating current practices in treatment of malnutrition in adult patients with ESRD. The questionnaire will identify guidelines that are presently followed, markers of malnutrition, and treatment/therapy provided. In addition existing practice will be evaluated through a literature review of current research and pre-existing evidence based clinical guidelines such as the National Kidney Foundation Kidney Disease Outcomes Quality Initiative, Canadian Society of Nephrology, and the American Society for Parenteral and Enteral Nutrition. **Results:** Expected findings are that dietitians of the NARP are currently using a combination of best practice, evidence based research and various clinical guidelines in their practice. Preliminary analysis of literature review and clinical guidelines indicate medical and diet history, subjective global assessment, body mass index, weight loss, residual renal function, dialysis adequacy, serum albumin, serum bicarbonate, nitrogen balance and inflammatory markers such as C-reactive protein are markers of malnutrition. Management of malnutrition ranges from treating causes and catabolic factors, dietary advice, oral supplements, enteral/parenteral nutrition and regular screening. **Implications and Conclusions:** Development of an algorithm provides a starting point to identifying and treating malnutrition in ESRD. It will also be useful as a tool for standardizing practice among the dietitians of the NARP. Further research to test the validity of the algorithm is anticipated.

Title: Bacterial analysis of reconstituted powdered infant formula compared to temperature and hang-time in the neonatal and pediatric intensive care units

Author: JR Wilson, K Brunet & B Larsen, Capital Health Integrated Dietetic Internship Program, Edmonton, Alberta.

Objectives: Powdered infant formula is not a sterile product and has been linked to fatal neonatal infections in clinical settings. Manufacturers state that reconstituted powdered infant formula remains safe at room temperature for four hours. This study aims to confirm this recommendation in a clinical setting. **Methods:** For this prospective pilot study, we sampled reconstituted powdered infant formula, with or without expressed mother's milk, delivered continuously to infants less than 1 year old in the neonatal and pediatric intensive care units. Formula samples were taken at the beginning and end of a four-hour hang-time and are presently undergoing analysis for total bacteria cell count and total coliforms using BAP and MacConkey agars. Suspicious colonies will be further evaluated to identify *Enterobacter sakazakii*. Temperature of formula in the feeding set was recorded every two hours. **Results:** We expect that formula samples will show safe levels of bacterial growth and that no *E. sakazakii* bacteria will be present. Safe levels of bacteria growth are determined by standards for bacteria in fluid milk: 2×10^4 CFU/g and up to 10 CFU/mL. A ln-transformation will be applied to all colony counts before analyzing using repeated measure of analysis of variance. The statistical model will contain effects for product, temperature, time, and interactions between these effects. **Implications:** The results of this study hold implications for ensuring neonate patients receive the safest formula products and will confirm the significance of adhering to hang-time guidelines. The results may also highlight factors that contribute to a favourable environment for bacterial growth in reconstituted powdered infant formula, such as elevated formula temperature.

Title: Improving the assembly process of patient nourishments using lean engineering methods

Author: SH Colebrook, Capital Health Dietetic Internship Program, Edmonton, Alberta

Objectives: Regional Nutrition and Food Services (RNFS) is currently using 'lean systems engineering' methods to improve process flow, eliminate waste and evaluate customer needs. These methods were trialed for the nourishment assembly process at Capital Health's Food Service Centre (FSC). The FSC acts as a commissary preparing bulk food, patient trays and nourishments for a 676 bed acute-care facility, the Royal Alexandra Hospital (RAH), and a 244 bed facility, the Glenrose Rehabilitation Hospital (GRH). **Methods:** Nine Canadian hospital Food Service departments were surveyed to determine alternate methods of nourishment preparation and best practices. The current nourishment process was analyzed using lean engineering techniques such as observation records, process timings, spaghetti diagrams (employee movement maps) and video footage. Inefficiencies identified included area disorganization, non-standardized work and time wasted on non-value added activities, such as locating items. An organized 'work cell' was designed for the area with staff input, the assembly process was streamlined/standardized and the ordering system was improved. **Results:** Staff involved in the trial found the 'work cell' improved area organization within a smaller space making the assembly process easier and more ergonomically friendly. The assembly and locating time per nourishment decreased for both bulk and individual assembly styles due to streamlined production processes. The ordering system changes further reduced space requirements and inventory stocked in the area. Non-value activities, such as locating and labeling, were decreased through standardization of work. **Conclusion:** The application of lean engineering methods to the nourishment assembly process improved production time, space requirements, area organization, ergonomics and work standardization. The application of lean engineering to the current process can act as a viable method to increase efficiency for future growth.

Title: Efficacy of Dietetic Intervention on Improving Anthropometric, Nutrition and Physical Activity Outcomes in Overweight and Obese Children.

Author(s): I Sobat, K Brunet and D Mager, Capital Health Dietetic Internship Program, Edmonton, Alberta.

Objectives: Nutrition Services (NS) Pediatric Weight Management Program is a pediatric focused ambulatory service for overweight and obese children offered by outpatient dietitians at two sites within the Stollery Childrens Hospital (University of Alberta Hospital and the Royal Alex Hospital sites) in the Capital Health Region. The objective of this study was to evaluate the impact of dietetic counseling on the following outcome variables: Body Mass Index (BMI), waist circumference (WC), weight, dietary intake (fruit and vegetable consumption) and physical activity. **Methods:** A retrospective chart review was conducted in overweight and obese children (2-17 years; n=300) seen by the outpatient dietitians (April 2006- April 2007) in the NS Pediatric Weight Management Program. Dietitians assess changes in anthropometrics, dietary intake patterns and physical activity at the time of initial clinic visit and at monthly follow-up sessions as part of routine clinical care. Progress of each patient is monitored with 2004 CDC BMI-for-age growth charts, measured changes in WC, fruit and vegetable servings from Canada's Food Guide based on a 24-hour diet and physical activity recall. **Results:** Interim analysis indicate that children receiving dietetic counseling experienced significant improvements in 'diet quality' through a greater intake of fruit and vegetable servings and total time spent in physical activity ($p < 0.05$). Expected outcomes also include a decrease in BMI z-scores and WC, but await further statistical analysis.

Conclusion: Dietetic intervention has clinical significance on improved health outcomes of overweight and obese children. This may lower the risk of comorbidities that are associated with excess weight in childhood.

Title: Food portion size estimation accuracy in overweight children and youth

Authors: C Wynn¹, BN Barbarich², GDC Ball^{2,3}. ¹ Capital Health Integrated Internship Program, ² Pediatric Centre for Weight and Health, Stollery Children's Hospital, ³ Department of Pediatrics and Child Health, University of Alberta, Edmonton, Alberta

Background: The use of portion size measurement aids (PSMA) (e.g., baseball, deck of cards) has been recommended to help estimate nutrition intake. **Objectives:** (1) To examine the accuracy of two sets of portion size estimation tools (PSMA *versus* measuring cups [MC]) for estimating portions of food from a standardized test meal; (2) to determine if portion size estimation accuracy differed according to age (children *versus* youth). **Methods:** This was a cross-sectional study conducted at a pediatric weight management centre. Overweight children (n=17; age range: 8-11 years old) and youth (n=8; age range: 12-15 years old) estimated the portion sizes of known quantities of food from a standardized test meal using both PSMA and MC. Foods were categorized as amorphous, solid or liquid. **Results:** Percent estimation error (mean \pm standard deviation) was calculated for each food item. Overall, amorphous food was overestimated by 25.7 \pm 45.1% using PSMA and 22.7 \pm 72.8% using MC; liquid food was underestimated by 21.7 \pm 46.9% using PSMA and by 22.2 \pm 24.2% using MC; solid food was underestimated by 6.1 \pm 13.2% using PSMA and overestimated by 5.2 \pm 26.0% using MC. For all comparisons, estimation error did not differ significantly from 0 (all p-values >0.05). No significant differences in portion size estimation accuracy were found between children and youth. **Conclusion:** PSMA and MC are useful tools for estimating foods in overweight boys and girls; however, additional research is needed to determine how portion estimation error and variability can be minimized in this population.

Title: Why we don't return: Reasons for Nonreturn to a pediatric weight management program

Authors: CE Kitscha, K Brunet, DR Mager. Capital Health Dietetic Internship Program, Edmonton, Alberta.

Objectives: Obesity in childhood and adolescence has become a major public health concern in Canada. To address the obesity epidemic, it is necessary to develop effective dietetic interventions. The purpose of this study was to determine parent and/or caregiver and/or patient reasons for not returning for follow-up clinical care in the Nutrition Services (NS) Pediatric Weight Management Program in Capital Health.

Methods: A qualitative telephone survey was developed and tested for content validity by five Pediatric Registered Dietitians within the region. The survey was administered to parents and/or caregivers of children aged 2.3-12.4 (n=29) or adolescents aged 14.1-17.3 (n=3) [n=33; mean \pm SD: age 7.8 ± 3.6 years, BMI z-score 2.28 ± 0.88 , 73% female, 27% male] who attended either an initial clinic visit or an initial clinic visit and a follow-up clinic visit in the NS Pediatric Weight Management Program between September 1- December 31, 2006. **Results:** The expected findings of the pilot study are parents and/or caregivers and/or patients failed to return for clinical follow-up in our clinics because of dissatisfaction with the program. This may be due to variables related to clinic scheduling, location or timing of appointments or due to dissatisfaction with the clinic services provided. Ultimately, this may cause barriers to pediatric obesity care.

Conclusions: Understanding reasons for parent and/or caregiver and/or patient failure to return will allow for examination of the 'model of care'. This may lead to the restructuring of pediatric weight management programs and result in enhanced patient care. Further research is necessary to address unique parent and/or caregiver or patient concerns to aid in the development of effective pediatric obesity intervention programs.

Title: Oral nutrition samples: from the patient's perspective, what is the benefit? - Pilot study

Authors: L Martin, C Basualdo-Hammond, Capital Health Dietetic Internship Program, Edmonton, Alberta.

Objective: The practice of distributing oral nutrition samples to patients by dietitians is believed to provide a nutritional benefit; however, research is lacking to support this assertion. The purpose of this qualitative study is to assess the benefit, from the perspective of the patient, of receiving oral nutrition samples. **Methods:** A survey was distributed to dietitians in the Capital Health region to learn about the practice of providing samples to patients. Of the 40 dietitians that responded to the survey, those working in renal, home care/geriatrics and pediatric areas were the most frequent distributors of samples. Dietitians within these three areas (n=21) are recruiting patients prospectively for 30 days. We are aiming to recruit 18 subjects within each area (n=54). Patients who are given samples by their dietitian, meet inclusion criteria and consent to participate will be contacted by telephone to answer questions about their use of the samples and their perceived benefit of receiving the samples. Qualitative data on sample use will be analyzed based on themes identified. **Results:** Dietitians distributed samples most frequently to encourage use of the product, trial and subsequent purchase of the product or to assist lower income patients. Recruitment of subjects and data collection is in progress. Results are pending data analysis. **Implications & Conclusion:** This unique pilot study will facilitate an understanding of the value of this service for Capital Health Regional Nutrition and Food Service and the community it serves. This knowledge may improve our sample distribution practices and the quality of care provided to patients. Future research may explore patient care outcomes in patients given samples versus those not given samples.

Title: Bone mineral density in children with chronic cholestatic liver disease and in children who have undergone liver transplantation.

Authors: D Jackshaw, J Dypchey, J McNeil, S Gilmour, D Mager, Capital Health Dietetic Internship Program, Edmonton, Alberta

Objectives: Metabolic bone disease is prevalent in children with chronic cholestatic liver disease: pre and post liver transplantation. The purpose of this study was to assess the potential variables (anthropometric, disease severity, bone age, bone surface area) contributing to decreased bone mineral density in children with chronic liver disease pre-and-post liver transplantation. **Methods:** We conducted a retrospective chart review (n=94) of children clinically diagnosed with mild to moderate chronic cholestatic (MCC) liver disease pre-and post liver transplantation (February 1999-December 2006). Bone mineral density (BMD) and bone mineral content (BMC) was measured using Dual Energy X-ray Absorptiometry (DEXA). **Results:** 15 children with MCC liver disease (7.4 ± 4.4 yrs; range 0.5-14.8 yrs) and 79 children post liver transplantation (7.5 ± 3.1 yrs; range 2.25-15.25 yrs) were reviewed. There were no significant differences in anthropometric variables between the two groups ($p > 0.05$). Children with MCC liver disease had significantly lower lumbar BMD z- scores (-1.53 ± 0.81) when compared to children post liver transplantation (-0.46 ± 0.89) ($p < 0.05$), indicative of a high prevalence of osteopenia in this population (82% pre transplant, 40% post transplant). **Conclusion:** Osteoporosis and osteopenia are common forms of bone disease found in children with chronic liver disease pre-and post liver transplantation, and are associated with pathologic fractures, decreased quality of life, and increased mortality in these patients. Active prevention of bone disease in children with chronic liver disease is critical to avoid these serious complications.

Title: Screening for celiac disease in patients with type 1 diabetes

Author: JM MacPherson, Southeastern Ontario Dietetic Internship Program, Kingston, Ontario

Objectives: To review the literature on the efficacy of screening for celiac disease in adults and children with type 1 diabetes. **Methods:** Literature was collected between September 2006 to February 2007 using MEDLINE and CINAHL databases. A total of thirty two papers, relevant to the practice question, were critically appraised. Key practice points were developed, and the supporting evidence was assigned a grade level of A through C based on Dietitians of Canada's *PEN* guidelines for grading evidence. **Results:** The literature suggested that celiac disease should be considered in people with type 1 diabetes because of the increased prevalence in this population. The increased prevalence may be explained by both diseases being associated with the Human Leukocyte Antigens DQ2 and DQ8. Due to the lack of classic symptoms in this population, a screening program may uncover many people with the disease. However there is insufficient evidence to justify a routine screening program since the natural history of silent, screen detected celiac disease is unknown. Prescribing a gluten-free diet for asymptomatic patients may decrease their quality of life and compliance to the diet may be low. Patients with type 1 diabetes who become symptomatic with classic or atypical indications of celiac disease should be tested at that time. **Implications & Conclusions:** Clinicians working with the type 1 diabetic population should look for signs and symptoms of classic and atypical celiac disease. More research is needed about the natural history of silent celiac disease before a routine screening program can be justified.

Title: The acceptance of the *Healthy Weights Triage Tool* by Ottawa physicians

Authors: CW Yeong, The Ottawa Hospital Dietetic Internship Program, SN Rowe, Ottawa Public Health, Ottawa, Ontario.

Objectives: Ottawa Public Health (OPH) developed a triage tool for Ottawa physicians to identify children at risk for overweight and triage them to the appropriate intervention if necessary. The objective of this study was to test the acceptance for future use of the *Healthy Weights Triage Tool* for Ottawa physicians in terms of format and content.

Methods: A *Healthy Weights Triage Tool* was developed based on findings from the literature and the results from the 2005-2006 study, *Determining the willingness of Ottawa physicians to use a public health toolkit to monitor healthy weights in children*. One two-hour focus group was held to explore the physicians' (N=3) acceptance of the triage tool for future use in practice and to gather feedback. Physicians were recruited through snowball sampling where existing study subjects recruited future subjects from among their acquaintances. Questions were asked regarding features such as the format and the content, which would influence their decision to use the triage tool.

Results: All of the physicians found the content and format of the tool to be clear. However, not all of the physicians found the content to be useful for future practice. Two out of three physicians indicated that they would use the triage tool with modifications.

Implications & Conclusions: The physicians viewed the tool as a useful resource for patients. However, they did not find the assessment grid useful to identify children at risk for overweight. Incorporation of behaviour change or use as an educational tool were some suggestions for future development. The results from the focus group provide useful direction and guidance for future refinements to the triage tool.

Title: Does the provision of nutritional supplement via medication pass result in greater total daily energy and protein intake relative to standard practice in nursing home residents at Sunnybrook Health Sciences Centre?

Authors: M Kato and E Senn, Sunnybrook Health Sciences Centre Dietetic Internship Program, Toronto, Ontario

Objectives: As malnutrition and weight loss are serious problems for long term care residents resulting in equally serious complications if left untreated, we are conducting a pilot randomized, controlled, crossover, intervention trial in the nursing home units of Aging and Veterans Care (AVC) at Sunnybrook Health Sciences Centre i) to determine if a medication pass model of nutritional supplement delivery is accepted by AVC nursing home residents, ii) to compare the total and mean volume of nutritional supplement consumed when receiving nutritional supplements via medication pass versus standard delivery on meal trays, iii) to compare the total and mean daily energy and protein consumed when receiving nutritional supplements via medication pass versus the standard practice, iv) to compare the mean and total volume of waste generated by nutritional supplement delivery at medication pass versus the standard, and v) to determine whether the use of a more concentrated nutritional supplement, Resource® 2.0, is a financially viable approach to increase energy and protein intake among AVC nursing home residents. **Methods:** Participants were recruited based on current nutritional supplement regimen. Baseline intake was measured indirectly by collecting tray waste during a 5-day control period followed by a 9-day washout. Participants were subsequently randomized to the two intervention phases by unit of residence. During each phase, on-tray delivery of nutritional supplement was replaced with isocaloric, isonitrogenous medication pass delivery of Resource Plus® or Resource® 2.0, separated by a 9-day washout followed by crossover. Waste was again collected to indirectly determine nutritional supplement intake. **Results:** Pending.

Title: Do St. Joe's lunch program participants eat their vegetables?

Author: T Kowalenko, the Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario and O Wodin, Sandy Hill Community Health Centre, Ottawa, Ontario.

Objectives: St. Joe's lunch program is a community food assistance program at the St. Joe's Women's Centre located in downtown Ottawa, Canada. Based on previous studies and observation, it is sometimes assumed that meal program participants will not eat vegetables when served to them. The objective of this project was to determine the average percentage of vegetables consumed by the participants of the St. Joe's lunch program at their lunchtime meals. The goal is to encourage the inclusion of more vegetables on the menus of food programs. **Methods:** This was a single-blind, qualitative, naturalistic observational study. The participants were observed on five different weekdays. The amount of vegetables remaining on each participant's plate at the end of the meal was recorded using a visual plate waste audit. **Results:** A total of 105 participants were present on the 5 days of data collection. The average daily number of participants was 21. The majority of participants were over 30 years of age. The mean percent of vegetables eaten was 87.5% regardless of age. A significantly higher percent of vegetables was eaten by participants 31 years and older compared to those less than 31 years (0.001). **Conclusion:** This study gives hopeful evidence that participants of this food program do eat the vegetables served. Further research is needed to verify whether these results reflect all food programs. Nutritional deficiencies caused by a lack of vegetables in the diet may be avoided by ensuring access to an adequate amount vegetables in the daily meals served at food programs.

Title: The prevalence of malnutrition among cancer patients admitted to the Pembroke Regional Hospital

Authors: MA Carroll, D Mann, Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario

Objectives: The objective of the study is to determine the percentage of cancer patients who are malnourished at the time of admission to the Pembroke Regional Hospital.

Methods: A retrospective review was conducted on the medical charts of 25 patients over the age of 18 years, who were admitted to the Pembroke Regional Hospital between September 2006 and December 2006 with a primary or secondary diagnosis of cancer. These patients' nutritional status and contributing factors were determined by analyzing the results of the Patient Generated Subjective Global Assessment (PGSGA) on file in the patients' charts. The patients' nutritional status was assessed as being well-nourished, moderately malnourished or severely malnourished. **Results:** The study found that 88% (n=22) of cancer patients admitted to the Pembroke Regional Hospital were malnourished at the time of admission and require nutritional intervention. Forty percent (n=10) of these patients were severely malnourished and forty-eight (n=12) percent were moderately malnourished. Approximately 68% (n=17) of these patients had problems eating and 44% (n=11) had lost weight loss in the previous two weeks. **Conclusions:** The majority of cancer patients admitted to the Pembroke Regional Hospital are malnourished and require some form of nutritional intervention. If a referral were made to a dietitian at the time of cancer diagnosis, the risk of malnutrition in this patient population could be reduced.

Title: Examination of the Family Lifestyles Program: Reasons for high attrition and the Trans-theoretical Model.

Author: AJ Cadieux, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: The Family Lifestyles Program (FLP) is a family-oriented program promoting healthy lifestyles through behavior change to address pediatric overweight and obesity. The objectives were to determine the effectiveness of the Transtheoretical Model (TTM) in predicting program attrition, investigate further reasons for program drop out, and determine what screening tools exist for pediatric weight management programs. **Methods:** A readiness to change questionnaire based on the TTM was administered to all participants of the FLP and compared between program completers and non-completers. A telephone survey was designed and conducted on program non-completers, which consisted of nine Likert-type scale questions assessing program satisfaction with various factors and an opportunity to provide general comments on the program. A literature search was conducted to determine what screening tools for assessing readiness to change have been used in pediatric weight management programs. **Results:** The responses to the readiness to change questionnaires (n=30) were not remarkably different between the program completers and non-completers. The telephone survey (n=12) showed most disagreement with the level of time commitment required by the program and the participants' enjoyment of the group sessions (4 of 12 disagreed). None of the respondents disagreed upon statements regarding their enjoyment of the individual session and the enthusiasm of the dietitian. Additional reasons given for leaving the program included busy schedules, already knowing the information, and wanting the program to focus on weight. Few screening tools exist for assessing readiness to change in a pediatric setting. **Conclusion:** The reasons for leaving a program are complex, therefore it is difficult for one screening tool to predict program commitment.

Title: An Assessment of Nutrition Classes for Pregnant Women Living in Repulse Bay

Authors: A. Beaton, & B. Bobrowski, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: Limited research on providing nutritional messages to Inuit people is available. Omitting healthy eating habits during pregnancy predisposes the infant to lower birth weights, vitamin deficiencies and respiratory distress. The mother may suffer from anemia, hypertension and/or gestational diabetes. The goal will be to develop appropriate & effective group nutrition education classes for pregnant Inuit in Repulse Bay, and to determine if these classes are effective in improving the nutrition knowledge and food intake of this target population. **Methods:** The population is pregnant women living in Repulse Bay. The sample from this population receives medical care on a weekly basis. Nursing staff and Dietetic Interns will invite these women to enroll on a voluntary basis for pre-determined education sessions conducted over a 6-week time period from April to May of 2007. An initial nutrition knowledge survey and Food Frequency Questionnaire (FFQ) will provide a baseline of the existing nutrition knowledge. A series of weekly education modules will include: reviewing the Nunavut Food Guide; the role of iron, folic acid, calcium and Vitamin D in the body; a cost comparison of nutritious foods versus less nutritious foods; label reading; and a grocery store tour. Each week will include an oral group review of the previous week's education module, with the opportunity for the interns to further discuss the importance of the topics with the participants. During the final module, the knowledge survey and FFQ will be re-distributed and completed by the participants. The pre and post survey and FFQ will be compared to determine if the sample's nutrition knowledge and actual intake improved from the initial assessment. Descriptive statistics will be applied.

Title: Effectiveness of Implementing a Hydration Program for Residents in Long Term Care

Author: B. Sanders, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: The objectives of this research project were to (1) evaluate hydration programming in LTC facilities across Canada, (2) pilot a hydration program at Deer Lodge Centre and determine what effect the program had on increasing fluid intake among this population group, and (3) compare the results of a previous study of fluid intake among residents prior to the implementation of a hydration program. **Methods:**

A survey was developed and e-mailed to the Dietitians of Canada Gerontology Network and to registered dietitians in LTC facilities in Winnipeg, to collect information about hydration programming in facilities across Canada. A hydration program was implemented on two wards at Deer Lodge Centre. A hydration cart was used at PM & HS snack to promote fluid intake among residents. Fluid intake of ten residents on each ward was observed and documented during breakfast, AM, PM & HS snack, lunch, and dinner. The results of this study were compared to the previous study. **Results:**

While the survey indicated that no standard practice for hydration programming exists, 87.5% of respondents reported having some type of program in place. The results of the study demonstrated that a hydration program is an effective way of increasing fluid intake among residents. On both wards, overall average fluid intake increased by 19%.

Conclusions: Implementation of a hydration program can have a positive impact on the quality of life for LTC residents regardless of level of care. Both residents and staff ultimately benefit from the reduction of multiple conditions associated with poor hydration status among the elderly population.

Title: Nutritional Management of Patients Admitted to the St. Boniface General Hospital with Gastrointestinal Fistulas.

Author: C. Comtois, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: The goal of this study was to review the nutritional management of patients admitted with gastrointestinal fistulas to the St. Boniface General Hospital. The review determined how frequently enteral nutrition (EN), oral nutrition, and total parenteral nutrition (TPN) were utilized and the outcome in that setting. Current practices were reviewed.

Methods: Fifty cases of patients admitted with gastrointestinal fistulas from 2002 to March 2006 were retracted and information related to the nutritional management was recorded in a database. A literature search was performed to determine the nutrition management practices. A summary of the analysis was received and analyzed to determine the current management used and the outcome observed. **Results:** Of the 50 cases of gastrointestinal fistulas analyzed, 12% of the fistulas were located in the small bowel with no specific site noted, 6% were located in the duodenum, 44% in the ileum, and 38% in the colon. 63% of the patients were managed by TPN, 34% on a progressive oral diet, and 3% received EN. Where 20% of patients receiving TPN experienced spontaneous closure, no patients receiving enteral or oral nutrition experienced the same. 30% of patients receiving TPN progressed to surgery, whereas 18% of patients receiving oral nutrition did the same. The literature supports positive outcomes when patients receive enteral or oral nutrition, however TPN seems to be used most often. **Conclusions:** Patients admitted with a gastrointestinal fistula to the St. Boniface General Hospital are most often treated with TPN. Though fistula healing was seen in patients receiving TPN, there may be a role for oral and enteral nutrition in a subgroup of patients with enterocutaneous fistulae.

Title: How accurate are four food assessment questions on the current nutrition screening tool used at the Youville Diabetes Centre and does the accuracy affect the validity of the tool?

Author: K Harvey, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: To determine the accuracy of 4 food assessment questions on the nutrition screen used at the Youville Diabetes Centre by comparing participants responses to the information reported on their 1-day “typical” menu plans. To determine the screens validity through measuring sensitivity by re-evaluating the initial risk scores of participants who answered at least 1 question inaccurately. **Methods:** Clients who attended 2 introduction education sessions, completed a nutrition screen and a 1-day “typical” menu plan at the Youville Diabetes Centre between April 18th and October 24th, 2006 were selected for participation (n=50). The 4 food assessment questions were judged for accuracy by comparing participants’ responses to the information on their 1-day “typical” menu plans to see if these were reflective of each other. Each question was assigned criterion for determining accuracy because they were too subjective and broad. Sensitivity was measured by re-evaluating initial risk scores of participants who answered at least 1 question inaccurately (n=32). An inaccurate response would give that question a different weighting (score) and possibly change the overall nutritional risk rating. **Results:** Of the 4 questions assessed, 3 were determined as inaccurate (<80%). Sensitivity of the screen was measured at 40%. Of the 32 participants who answered at least 1 question inaccurately, 9 truly high nutritional risk individuals were wrongly classified. **Conclusions:** Due to the screens’ low question accuracy (<80%) and low sensitivity (40%), it can be concluded that the use of the screening tool needs to be reassessed. I would recommend that the screen should not currently be distributed or used within the WRHA and all RHA’s in Manitoba.

Title: An Assessment of Dietary Intake of DHA and EPA in Pregnant Women and the Safety of these Fish and Fish Oil Supplements.

Author: EKH Funk, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: To determine if pregnant women involved in the Healthy Start for Mom & Me program are meeting their docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) requirements through diet alone and whether fish oil supplements are safe for pregnant women as a means to meet their recommended requirements for DHA and EPA. **Methods:** Forty pregnant women were recruited from the Healthy Start for Mom & Me program in Winnipeg. Over a 3 week period participants completed a food frequency questionnaire to assess their DHA and EPA intakes in milligrams per day.

Results: All 40 women completed the questionnaire; only 4 of these women met the International Society for the Study of Fatty Acids and Lipids (ISSFAL) recommended requirements for DHA and EPA during pregnancy. Results of the study indicate that 99% of the participants were not meeting the minimum requirements recommended for pregnancy. The literature review also revealed that there cannot be definitive conclusions regarding the safety fish oil supplements. **Conclusions:** The study was completed with only an exclusive group of women who participate in Healthy Start for Mom & Me, nevertheless the information signifies a trend demonstrating EPA and DHA deficiency in low-income pregnant women in Winnipeg. The main limitations of this study were: very specific target group, therefore small sample size as well as an overly simplistic questionnaire. In spite of these limitations, it does offer insight to Healthy Start for Mom & Me a target area in nutrition that can be discussed and covered during program sessions in order to better educate pregnant women involved in their program.

Title: Among WRHA Home Care Clients in Winnipeg, What Percentage of Clients Receiving Texture Modified Meal Preparation Services are Admitted to Hospital for Aspiration Pneumonia?

Author: L Mandock, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: The goal of this study was to determine the rate of recent hospital admissions, either ER visits or overnight stays, due to aspiration pneumonia of WRHA Home Care clients receiving texture modified meal preparation. These conclusions may then strengthen the argument for the implementation of a staff-training program to minimize these admissions. **Methods:** Literature searches were performed to determine the potential health consequences related to swallowing disorders. A summary of the Home Care assessment database was received to determine the number of Home Care clients currently receiving meal preparation services by Home Care Direct Service Staff, health complications and their rate of hospital visits. A random sample from this group was cross-referenced with clients diagnosed with swallowing disorders and assessed by a Speech Language Pathologist (SLP). These groups were compared to a control group of WRHA Home Care clients randomly selected from a sample area within Winnipeg. **Results:** The evaluation of the Home Care assessment database revealed that WRHA Home Care clients receiving texture-modified meal preparation services from Home Care Direct Service Staff without formal meal preparation training had greater rates of hospital admission (overnight stays=33%, ER visits=40%) as compared to those clients who had appropriately trained staff (overnight stays=29%, ER visits=0%). **Conclusions:** The results indicate that providing Home Care Direct Service Staff with additional training which focuses on the proper preparation of texture-modified diet and thickened-fluid may help reduce the rate of hospital admission among Home Care clients with swallowing disorders.

Title: Nutritional Status of Oncology Outpatients at Victoria General Hospital: A Needs Assessment for Nutritional Screening and Dietitian Services.

Author: P Klassen, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Purpose: The goal of this study was to determine the prevalence of malnutrition and risk for malnutrition in the patients receiving intravenous treatment for cancer at the Victoria General Hospital. Recommendations were developed based on the study results and relevant literature. **Methods:** All patients attending the VGH oncology treatment clinic for intravenous therapy during the 3-week study period were eligible for inclusion. The scored Patient-Generated Subjective Global Assessment tool was used to determine the risk for malnutrition or presence of malnutrition in each of the subjects who participated. Subjects were classified according to their total scores and the corresponding nutritional triage recommendations of the PG-SGA. **Results:** 60 subjects out of a total population of 100 participated in the study. 8.3% of subjects had a total score of 0 or 1 and required no nutritional intervention at the time of assessment. 28.3% of subjects had a score of 2 or 3 and required some form of patient and family education by a dietitian, nurse, or other clinician, along with pharmacologic intervention for symptom management. 63.3% of subjects received scores of 4 or greater, indicating a need for intervention by a dietitian. Of these, 57.9% (22) had a *critical need* for improved symptom management and/or nutrient intervention options, based on a score of 9 or greater. **Conclusions:** The current study indicated that almost two thirds of the population were at risk for or were experiencing malnutrition at the time of assessment. A screening process to identify at-risk patients would provide sound basis for referral to a dietitian and may prevent malnutrition in this already compromised population.

Title: Fluid Intake of Residents at the Deer Lodge Centre.

Author: R Rzycki, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba.

Objectives: This study evaluated the fluid intake of the residents at the Deer Lodge Centre (DLC), Winnipeg, by recording and comparing their actual with the recommended fluid intake. The researcher also looked into the differences in fluid intake due to the cognitive and self-feeding capabilities of the residents. **Method:** 30 selected residents were categorized into three groups: ten residents characterized as cognitively able to make decision and communicate their food and fluids needs (A), ten residents with cognitive impairment whose communication and self-feeding abilities were impaired (C), and ten with Alzheimer disease, but with self-feeding capabilities (D). The two, 24-hour fluid intake was recorded on 3 wards, for each selected resident. The recommended fluid intake was derived from two standards based on body weight. The recorded fluid intake was compared with the calculated recommended levels and with the value of an adequate intake of water for adults older than 70. **Results:** Research findings show that the elderly in DLC received inadequate amounts of fluid intake. 93% of the study group did not obtain the recommended fluid intake calculated from two standard formulas. 50% of the participants did not meet the adequate intake of 1,500 mL of fluid a day. Fluid intake was similar in groups with various levels of cognitive or self-feeding impairments.

Title: Examination of recent weight change as a predictor of refeeding syndrome in head and neck cancer patients referred to the Manitoba Home Nutrition Program.

Author: S Painter, Manitoba Partnership Program for Dietetic Education, Winnipeg, Manitoba.

Objectives: At the Manitoba Home Nutrition Program (MHNP), referrals are received to initiate tube feeding in head and neck cancer patients in their homes. These patients all have some degree of malnutrition and weight loss and approximately 10% have severe weight loss. The MHNP currently uses weight loss over time to identify “at-risk” patients that need monitoring. As a result, the objective is to determine if this is the most sensitive measure to identify refeeding syndrome. **Methods:** A total of 51 head and neck cancer patients, referred to MHNP from Cancer Care Manitoba to initiate tube feeding on an ambulatory outpatient basis, were selected for a retrospective chart review. An examination of which patients refeed were compared to those who did not in attempt to determine any defining diagnostic criteria. A national survey was also distributed via email to determine which screening tools other programs across Canada are using to identify patients at risk for refeeding syndrome in an outpatient setting. **Results:** All patients reviewed displayed an oral intake less than their recommended energy and protein requirements prior to beginning enteral nutrition. The primary cause of decreased oral intake was dysphagia. Six patients experienced refeeding syndrome. These participants all experienced a severe weight loss and less than 50% of usual oral intake in the 1-2 weeks prior to initiation of EN. **Conclusion:** This chart review demonstrated that severe weight loss does identify patients at risk of refeeding although is not highly specific.

Title: Nutritional Management of Hyponatremia and the Syndrome of Inappropriate Secretion of Antidiuretic Hormone at the Grace General Hospital

Author: S Legault, Manitoba Partnership Dietetic Education Program, Winnipeg, Manitoba

Objectives: To determine the appropriate nutritional treatment method for patients with hyponatremia and the syndrome of inappropriate secretion of antidiuretic hormone (SIADH) at the Grace Hospital. **Methods:** A retrospective chart audit of 100 recently discharged patients diagnosed with hyponatremia was conducted at the Grace Hospital. Literature was reviewed to compare the existing treatments used at the hospital to ones recommended as best practice. **Results:** The results showed numerous underlying factors, which contributed to hyponatremia such as pneumonia, seen in 13% of patients, and congestive heart failure, seen in 9% of patients. The most common contributor to SIADH was the use of diuretics, seen in 45% of patients. The most common treatment of hyponatremia was intravenous fluids, (86%), followed by fluid restrictions (45%). Only 16% of patients with SIADH were treated according to best practice guidelines. **Implications & Conclusions:** This paper provides best practice guidelines for the treatment of SIADH for use at the Grace Hospital. Firstly, it is recommended to treat the condition underlying the hyponatremia, which often resolves it. Assessment of a patient's fluid status helps determine the appropriate treatment. In hypovolemic, (low extracellular fluid), hyponatremia, normal saline solution is used to improve the volume status of patients. In hypervolemic, (high extracellular fluid), hyponatremia, fluid is restricted and in some cases diuretics are used to rid the body of excess fluids. In euvoletic, (normal extracellular fluid), hyponatremia, most commonly caused by SIADH, fluid restriction is the recommended treatment while saline solution is not. The risks of a quick sodium correction, mainly demyelination, (nerve damage), must be weighed against the benefits of treating hyponatremia.

Title: Are patients admitted with congestive heart failure receiving a dietitian consult regarding sodium restricted diet teaching at Queensway Carleton hospital?

Author: S Lin, N Parsons, The Ottawa Hospital Dietetic Internship, Ottawa, Ontario

Objectives: Sodium restricted diet teaching is an important part of the care plan for managing congestive heart failure (CHF). The objective of this research was to determine the prevalence of CHF patients at Queensway Carleton Hospital (QCH) not receiving a dietitian consult for sodium restricted diet teaching. **Method:** The study was a retrospective chart review of patients with the most responsible discharge diagnosis of CHF (n=238) from the dates July 1st, 2005, to June 30th, 2006. **Results:** The analyzed data indicated that 164 (68.9%) CHF patients were not referred to a dietitian for nutrition education. For the 74 (31.1%) CHF patients who were referred, only 17 (7.1%) of these patients had sodium restricted diet teaching. The remaining 57 (23.9%) patients received other dietary interventions. The main reason noted for a dietitian referral was poor nutritional intake. **Conclusion:** Results indicated the majority of CHF patients at QCH were not referred to the dietitian sodium restricted diet teaching. This research, therefore, suggests that as a member of the multidisciplinary team, dietitians at QCH may be underutilized in managing the care of CHF patients. The research findings provide direction for the dietitians at QCH to educate the health care team regarding the importance of a sodium restricted diet in improving patient self care, disease control and possibly contributing to a reduction in hospital admission and readmission rates in the management of CHF.

Title: Prevalence of childhood obesity in Kapuskasing, Ontario: a cross-sectional study

Author: T Genys, Ottawa Hospital Internship Program, Kapuskasing, Ontario

Objectives: This research was done to gain knowledge for program planning and resource allocation. The prevalence of obesity among genders and ethnicity was measured in a grade 6 student population. The findings from Kapuskasing were compared to those obtained from Hearst, Ontario in 2005. **Methods:** Permission to conduct the study in the elementary schools was obtained from the four school boards in Kapuskasing. Consent forms were distributed to grade six students (n=140). Students with a signed consent form participated. Anthropometric measurements were taken using a Stadiometer and a Healthometer. The Center for Disease Control and Prevention (CDC) criteria was used for the obesity, overweight and underweight categories. Data was analyzed based on gender and ethnicity. Data was also compared to the Hearst study using z-table and chi square test. **Results:** Anthropometric measurements were taken from a 105 grade 6 students in which 51.4% were female and 48.6% were male. The median age was 11.4 years. The prevalence of underweight was 0%, acceptable weight was 68.6%, overweight was 15.2% and obese was 15.2%. There was no statistical difference in the prevalence of overweight and obesity among genders or between the Kapuskasing and Hearst data. The sample on ethnicity was too small to draw any conclusions. **Conclusion:** The findings from this research suggest that the prevalence of obesity in Kapuskasing for boys and for girls is the same as the previously reported by the Porcupine Health Unit for the grade 6 student population in Hearst.

Title: Using food preference forms to decrease food wastage for a non-selective hospital menu

Authors: JD Schumacher and TM Lomond, The Ottawa Hospital Dietetic Internship Program, Cornwall, Ontario.

Objectives: To determine whether providing hospital patients with the opportunity to indicate preferences for soups and beverages, in an otherwise non-selective menu, would decrease wastage of these items.

Methods: On day 1, tray audits were conducted at breakfast, lunch, and dinner to measure the amount of unconsumed soups and beverages currently occurring at the Cornwall Community Hospital. A patient food preference form was developed and distributed to existing and new patients on days 2 and 3. As forms were returned to foodservices, preferences were entered into the foodservice software program and implemented at the following meal. On day 4, tray audits were conducted at all three meals to measure the amount of unconsumed soups and beverages. The amount of wastage before and after the implementation of the patient food preference form was compared using Chi Square and Fisher's Exact tests.

Results: The amount of unconsumed coffee at lunch ($p = .03$) and soup at dinner ($p = .01$) was found to be significantly less after the implementation of the food preference form. The total amount of milk ($p = .02$), soup ($p = .01$), and coffee ($p = .01$) wasted for all meals were also significantly reduced. Overall, there was a significant decrease in the total amount of wastage at breakfast ($p = .03$) and dinner ($p = .02$), and in total items for all meals ($p = .004$).

Implications & Conclusions: Results indicate that allowing patients to express some food preferences, in an otherwise non-selective menu, could lead to a reduction in wastage of those items. This could lead to cost savings for the foodservice department and increased patient satisfaction.

Title: Malnutrition risk in cancer outpatients: prevalence, validity, and ease of use of an abridged version of the Patient-Generated Subjective Global Assessment

Authors: J Robinson*, D Scaffidi, C Brezden-Masley, P Darling. St. Michael's Hospital Graduate Dietetic Internship Program, Toronto, Ontario.

Objectives: The prevalence and characteristics of patients who are at risk for malnutrition at the Medical Day Care Unit (cancer outpatient clinic) at St. Michael's Hospital is unknown. A simple and validated method of screening patients is needed to understand this population and make referrals for treatment. As such, the objectives of this study are to determine the prevalence of malnutrition risk at the outpatient clinic using the validated Malnutrition Screening Tool (MST) and to determine if an abridged version of the Patient-Generated Subjective Global Assessment (PG-SGA) that omits the physical exam is a valid and practical method of screening patients for malnutrition risk. **Methods:** This is a prospective, cross-sectional, observational study. Patients (n= 93) who provide their informed consent complete the three question MST, and the portion of the PG-SGA form related to their height, weight, food intake, symptoms, and activities and functional ability. Patients are also asked to consent to an optional and non-invasive physical exam (SGA), involving having their muscle, fat and fluid status visually assessed. The remainder of the PG-SGA form is completed by a study investigator using the patient's chart on the day of data collection. Data collection is ongoing and analysis of sensitivity and specificity of PG-SGA vs. MST and SGA is planned. **Significance:** This study will provide new descriptive data on the prevalence of malnutrition risk in patients who visit St. Michael's Hospital for their cancer treatment. The results may support the incorporation of the abridged PG-SGA into future practice to help streamline and improve the nutrition care process.

Title: Do patients discharged from the University of Ottawa Heart Institute with a diagnosis of acute coronary syndrome use the 'Eat for your heart's content' nutrition education tool?

Author: B Grant, K Turner, The Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario

Objectives: In response to an increase in short stay patients, dietitians at The University of Ottawa Heart Institute (UOHI) developed the nutrition resource entitled *Eat for your Heart's Content* (EFYHC) in July 2003. This nutritional tool was evaluated for format and content prior to its launch, however no formal evaluation of patient usage has been conducted to date. The objective of this study was to determine if patients found this nutrition resource useful. **Methods:** Patients (n=22) diagnosed with acute coronary syndrome who were recently discharged from the UOHI were telephoned and an interview was conducted. The interview was facilitated by a questionnaire developed to elicit feedback from subjects. The questionnaire involved evaluation of each of the four sections of the resource. Depending on whether the EFYHC resource was read or not, subjects were asked one of two sets of questions. **Results:** The EFYHC resource was read by 63.6% of respondents, and was not read by 36.4% of respondents. Respondents found all four sections of the resource useful. The fats and oils section was reported as most useful by 28.6% of respondents and the table of lipid values was reported as most useful by 14.3% of respondents. Although none of the subjects visited the websites listed in the resource, all reported that it was a good idea to include this information. **Implications & Conclusions:** This nutrition resource was well received by patients in terms of usefulness; however, due to the small sample size the results are not statistically significant. The results from this study are intended to aid future revisions of this resource.

Title: The Effects of Fasting during Pregnancy

Authors: P. Lento, M. Radovic, Montreal Diet Dispensary, Montreal, Quebec.

Objective: The purpose of this study was to investigate the effect of maternal fasting and stress on the fetus. **Methods:** A review of 25 recent scientific articles found in PubMed, Medline and OVID. **Results:** The studies reviewed have shown that maternal fasting results in a state of accelerated starvation which results in reduced flow of nutrients to the fetus and consequently poor growth and development. Research has also shown that if the fast is longer than 13 hours, there is an increase in the stress hormone, CRH which may result in pre-term birth. Studies done on Ramadan fasting show that fasting may cause a higher number of pregnancy complications, higher rate of caesarean sections and a two times higher induction of labour and incidence of GDM. Some studies did not find a direct link between Ramadan fasting and birth weights. Studies carried out during the Dutch Famine suggested that if food intake was restricted during the third trimester of pregnancy there was a higher tendency to deliver low-birth weight babies. Similarly, decreased frequency of meals and skipping meals were both associated with pre-term delivery. As for the effect of stress on pregnancy, it was shown that the timing of the stress as well as the source of the stress must be taken into consideration. The studies reviewed showed that whether the stress is work related, psychological, psychosocial or physical the incidence of pre-term birth is increased due to the neuroendocrinological stress response. One study also found that the effects of stress during pregnancy can be reversible if the source of the stress is resolved before 23-24 weeks. **Conclusion:** Evidence exists that maternal nutrition is crucial to the proper growth, development and well being of the fetus. The reviewed research shows that poor nutrition during pregnancy may result in higher risk of low-birth weight babies and pre-term delivery.

Title: Is the first part of the scored patient generated subjective global assessment an accurate tool in identifying cancer patients at risk of malnutrition?

Author: S.S. Salih, McGill University, Montreal, Quebec

Objectives: Studies reviewed have shown that the scored Patient Generated Subjective Global Assessment (PG-SGA) is a valid, sensitive and specific tool to screen for malnutrition in cancer patients. The aim of this pilot trial was to assess the feasibility of using the first part of the PG-SGA (the first four boxes only) as a screening tool, in an oncology ward, of a 600-bed acute care teaching hospital. **Methods:** The pilot trial was conducted during a 5 day period on one oncology unit, where all cancer in-patients were eligible to participate. Patients were screened using the first part of the PG-SGA. All other patients, not presenting with cancer, were excluded from this study. In order to assess this tool's sensitivity and specificity, its results were compared to the dietitian's assessment. **Results:** Twenty-two cancer patients (aged 22-88years old) were screened with the first part of the scored PG-SGA. The sample was 59% female and 41% male. Most common tumor sites were lymphomas, breast and ovarian cancer in women, and prostate cancer in men. The dietitian's assessment identified that 73% of sampled cancer patients were at nutritional risk. The screening tool was shown to have a sensitivity and specificity of 100%. It was revealed that the first part of the scored PG-SGA is an accurate, easy and quick (requires less than 4 minutes to complete) screening tool for cancer patients. **Conclusion:** The first part of the PG-SGA could be implemented in hospital oncology wards as a screening tool. It was found, in this pilot trial, to be an accurate and feasible tool to be used in patients with various cancer diagnoses.

Title: The impact of diabetes education on nurses' knowledge and subsequent care of cardiovascular inpatients with co-morbid diabetes.

Author: T Nathanson, Y Mullan, A Hall, S Schamehorn, and P Darling, St. Michael's Hospital, Toronto, Ontario.

Background: Diabetes education has forever been the cornerstone of diabetes management. A recent, informal audit at a tertiary care hospital has revealed numerous inconsistencies in inpatient diabetes management, especially in hypoglycemia management, medication administration and blood glucose monitoring. **Objectives:** This study aimed to 1) assess the effect of a diabetes education session on cardiovascular nurses' diabetes knowledge and 2) describe changes in diabetes nursing care among cardiovascular inpatients with co-morbid diabetes following a nursing diabetes education initiative. **Methodology:** Registered nurses working within a cardiovascular program at a tertiary care hospital completed a modified Diabetes Basic Knowledge Test, before and after attending a sixty-minute diabetes education session. Retrospective, randomized chart reviews were completed focusing on nursing care both prior to and following the nursing diabetes education initiative. Specific diabetes management criteria were evaluated: hypoglycemia management, ideal timing of medication/dietary adherence and blood glucose monitoring. **Results:** Nurse diabetes knowledge overall score increased by $10.3 \pm 9.7\%$, $p < 0.001$ on the post-test vs. the pre-test. More specifically, test scores before and after the education intervention yielded significant improvements in specific, defined, diabetes care areas. Ideal hypoglycemia management score improved by $11.1 \pm 16.1\%$, $p < 0.005$, ideal medication/dietary adherence scores improved by $20.5 \pm 22.7\%$, $p = 0.001$ and general diabetes knowledge scores improved by $13.3 \pm 17.1\%$, $p < 0.005$) on the post-test vs. the pre-test. Patient chart review in progress. **Implications and Conclusions:** A sixty-minute diabetes education session appears to be effective at increasing nurses' knowledge of ideal diabetes management in cardiovascular inpatients with co-morbid diabetes. Implications might include further study into the benefits of diabetes knowledge education/updates in other inpatient areas.

Title: Assessing stage of change for readiness to engage in weight management behaviours, in outpatients with osteoarthritis of the knee.

Authors: F. Begbie C. Carpenter, S. Miles, P. Darling, E. Bogoch,. St. Michael's Hospital Dietetic Internship Program, Toronto, Ontario.

Objectives: Weight loss has been shown to improve osteoarthritis (OA) symptoms and slow disease progression. Determining patient readiness to modify weight loss behaviours using a validated stage of change (SOC) tool will assist a new outpatient Registered Dietitian in creating tailored, population specific weight loss interventions. Study objectives include (1) Assessing the SOC of outpatients with knee OA to engage in weight management behaviours: portion control, dietary fat reduction, increased fruit and vegetable intake, usual activity, and planned exercise. (2) Determining whether a single-item (one global statement) versus multi-item (several statements) algorithm is more conservative in assessing SOC. (3) Examining the relationship between SOC and BMI category, age, gender, and income. **Methods:** This descriptive, prospective, cross-sectional study includes outpatients with diagnosed knee OA attending the Martin Family Centre for Arthritis Care at St. Michael's Hospital. After informed consent is obtained, BMI will be calculated. Patients with BMI > 25 kg/m² will be asked to complete the validated SOC questionnaire. Patient recruitment is ongoing with an estimated sample size of 91 based on an estimated prevalence of readiness to change of 25%. SOC for each behavior will be described as precontemplation, contemplation, preparation, action, or maintenance. Cross-tabulation will be used to compare the single-item and the multi-item scores. The relationships among SOC and BMI, age, gender, and income will be assessed using Pearson Chi-square or T-test. **Implications:** This study will provide population specific descriptive data including SOC with respect to adopting weight management behaviours. In future, the information will assist the RD in screening patients and for facilitating tailored weight loss interventions.

Title: Effectiveness and Feasibility of an Supervised Oral Nutritional Supplementation Among Inflamed and Non-inflamed Malnourished Hemodialysis Patients.

Authors: B MacKenzie, D Cook, P Darling, S Donnelly. St Michael's Hospital Dietetic Internship Program and Diabetes Comprehensive Care Program, Toronto, Ontario

Protein energy malnutrition (PEM) is highly prevalent among maintenance hemodialysis (MHD) patients and is associated with increased mortality and morbidity. Inflammation is a significant factor in the development PEM and may hinder nutrition therapy. Intradialytic TPN supplementation has been shown to counteract the catabolic effects of dialysis, but is not cost-effective. Oral nutritional supplementation is a promising intervention, with compliance being a major barrier. This prospective intervention study will examine the effectiveness and feasibility of a supervised oral nutritional supplementation (SONS) among inflamed and non-inflamed malnourished MHD patients. **Methods:** Patients will be recruited at the hemodialysis outpatient unit at St. Michael's Hospital Toronto Canada. Patients who meet study criteria and sign a consent form will be screened for malnutrition using serum albumin level (<35 g/L) and subjective global assessment (SGA). Inflammatory status will be determined using serum C-reactive protein (CRP) to classify subjects as inflamed (≥ 8 mg/L) or non-inflamed (<8 mg/L). Anthropometric, laboratory and dietary assessment data will be collected on all patients every 6 weeks during a 3 month baseline period, then during a 6 month intervention period during in which patients will receive the SONS intervention. SONS will consist of a 237 mL oral nutritional supplement taken by patients at each MHD session; intake will be supervised and encouraged. **Significance:** Findings from this study will help identify whether SONS can improve nutritional status. Any significant response differences found between inflamed and non-inflamed patients may support the use of inflammatory parameters in nutritional screening. Results may also support tailoring nutritional and indicate the need for supplements that address inflammation.

Title: Readability and clarity of a newly developed nutrition education handout

Author: R.M.N. Macleod, M. Rosen, The Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario.

Objectives: The objective of this project was to evaluate the newly developed nutrition education handout, Nutrition Guide for Heart Failure, for its clarity and readability. The handout is intended for patients discharged from the University of Ottawa Heart Institute with a diagnosis of heart failure. **Methods:** Subjects included patients discharged from the University of Ottawa Heart Institute and their significant others. Participants attended a focus group where they completed a questionnaire, followed by a discussion. A total of six subjects participated in the study; four patients and one significant other attended the focus group, and one patient completed the questionnaire by mail. The respondents were asked to evaluate the handout for its readability, set up, clarity of the pictures, amount of information, and were asked to rate the handout. **Results:** The Guide is at a grade six reading level with a reading ease of 68.5, deemed appropriate based on Flesch-Kincaid readability tests. Five respondents said the handout was easy to read. All participants liked the way the handout was set up and agreed that it was easy to understand. The participants commented on the flow, format, use of space, and the clarity of the suggestions and pictures. Two issues arose from the discussion: the wording of certain statements and information they would like added to the handout. **Implications & Conclusions:** The Nutrition Guide for Heart Failure is readable and clear for patients discharged from the Heart Institute with a diagnosis of heart failure. The Guide will be modified based on focus group comments and will be used as the new nutrition education tool.

Title: Improving the practice of enteral nutrition support therapy in a community teaching hospital

Authors: M. Tello and S. Wolfe, North York General Hospital Internship Program, Toronto, Ontario.

Objectives: Enteral nutrition support (ENS) is accepted as the preferred feeding method for patients unable to meet their nutritional requirements through oral intake. A hospital-wide protocol for ENS can benefit patient care by minimizing variability in practice and reducing the risk of complications; thereby, improving both patient outcomes and the quality of ENS delivery. Presently, the interdisciplinary healthcare teams at North York General Hospital (NYGH) have not implemented an ENS protocol for general-medicine patients. The objective of this study is to determine whether there is evidence (based on current hospital practices) to support the development and use of a general-medicine ENS protocol at NYGH. **Methods:** An extensive review of the literature was conducted to identify current evidence-based ENS practices and was used to develop appropriate data collection sheets for the retrieval of both medical chart and observational data. A retrospective chart review has been conducted on 16 enterally fed general-medicine in-patients at NYGH. Furthermore, an observational component has also been included in this study to gather data that was not attainable from patient charts such as: HOB elevation, feeding bag labels, volume of feed hung, and total feed hang time. **Results:** Currently, the results are being tabulated and summarized through an analytical comparison between present ENS practice at NYGH and evidence-based/ best-practice guidelines. **Implications:** This study has significant implications regarding the standardization of nutritional support practices leading to improved efficiency, safety, and effectiveness of treatment within general medicine patients at NYGH. This study will enable NYGH to make an informed decision concerning the future development of an enteral feeding protocol for general-medicine in-patients.

Title: The effect of meal tray delivery personnel on patient satisfaction of foodservice in a continuing-care hospital.

Authors: R.Hailstone, N.Lemire, The Ottawa Hospital Dietetic Internship Program, The SCO Health Services-Saint Vincent Hospital, Ottawa, Ontario.

Objective: Currently at Saint Vincent Hospital (SVH), a complex continuing-care centre, both dietary and nursing employees are delivering meal trays. The purpose of this study is to determine if delivery of meals by dietary employees vs. delivery by nursing employees improves the level of patient satisfaction with foodservice. **Methods:** All SVH patients receiving a meal tray from the foodservice department were considered as potential respondents. Those who were deemed capable by the dietitians and gave consent made up the sample pool for the study. The subjects were then administered the survey and asked to rate on a five-point Likert-scale, (where poor =1 and excellent =5) their level of agreement with 12 statements about food quality and meal tray service. The blind surveys were then coded by type of meal delivery system (dietary vs. nursing personnel) using the foodservice database. **Results:** A total of 55 (69%) subjects participated of which 33 (60%) were receiving trays from a nursing employee and 22 (40%) were receiving trays from a dietary employee. Analysis of variance determined that patients gave more positive ratings to statements if they were served by a dietary employee vs. a nursing employee; however there is no statistical significance ($p < .05$) between groups. Two factors were identified using factor analysis; food quality and meal tray service, which accounted for 43% of the variance. **Conclusion and Implications:** Patients served by dietary personnel gave more positive ratings to food quality and meal tray service. These results suggest that the type of meal tray delivery personnel positively influences patient satisfaction in a continuing care hospital.

Title: Promoting fruit and vegetable intake among a rural high school population

Author: R.J. Pooran, Southeastern Ontario Dietetic Internship, PHRED, KFL&A Public Health, Kingston, Ontario.

Objectives: To promote student interest in vegetables and fruit by helping to develop healthy food attitudes demonstrating vegetable and fruit preparation skills. **Methods:** Four 45minute cooking demonstrations were held with the support of cafeteria staff at Rideau District High School. 198 students were surveyed before demonstrations to assess food related attitudes, knowledge and eating behaviors. Each demonstration was targeted to reach 250 students. Participants' knowledge and awareness of vegetable and fruit intake was measured during each event. Students sampled the recipe and upon completion of the feedback survey each student received a social marketing tool (wristband) and free recipe. Completion of feedback survey guaranteed eligibility in a grand prize draw. Both surveys were based on a school food frequency questionnaire design determined from a literature review. **Results:** Pre-intervention survey results showed that 80 to 90% of students reported eating less than five fruit and vegetable servings per day and 74% of students liked cooking. Approximately 20% of the total sample population attended the first event and almost half attended the second. Ninety-eight percent of students in attendance indicated a positive interest in the featured recipe, cooking demonstration and healthy eating. Ninety-nine percent of students wanted the featured recipes available in the cafeteria. Students were attracted to the prizes, promotional items and free food. Demonstrations will be completed April 26th, 2007. **Implication and Conclusion:** School and cafeteria staff support are integral in shaping adolescents' eating choices. Further development of student food preparation skills can promote healthy eating. Future opportunities to promote healthy eating will be explored in partnership with Country Roads Community Health Centre, the high school and the school cafeteria.

Title: Do enterally fed patients in the medical surgical intensive care units at University Health Network achieve their recommended intakes?

Authors: L. Scott*, R. Singer*, V. Blunt, J. Madill, D. MacGarvie, C. Miller. University Health Network (UHN), Toronto, Ontario

Introduction: Enteral Nutrition support (EN) is an essential component of care in the Medical Surgical Intensive Care Unit (MSICU). **Objectives:** This study assesses whether, within the first week of MSICU admission, mechanically ventilated patients at UHN are receiving the total energy and protein intakes recommended by the Registered Dietitian (RD). **Methods:** Data will be collected via chart review during two separate collection weeks, for admission days 1 through 7, or to discharge from unit, whichever occurs first. Inclusion criteria: mechanically ventilated adults admitted to the MSICU for ≥ 3 days, receiving enteral nutrition exclusively and assessed for enteral nutrition by an RD. Exclusion criteria: admission < 3 days, a written 'do not resuscitate' order, transfer from another unit on EN or readmission to the MSICU on the same hospitalization. Information relating to recommended and actual enteral feeding, demographics, and APACHE scores will be recorded. Total amount of energy and protein received for each 24-hour period will be calculated and compared to individual recommendations in order to determine the percentage of energy and protein being met. Descriptive statistics and frequency distributions will be generated using SPSS 11.0. A p-value < 0.05 will be used to test significance. **Results:** This study will provide baseline data on current practice regarding EN in the MSICUs at UHN. **Conclusion:** It will be determined whether a gap exists between recommended energy and protein intakes and actual amount delivered. **Implications:** Results of this study will facilitate practice advancements to enhance the management of critically ill patients receiving enteral nutrition.

Title: Challenges and enablers influencing restaurant owners' uptake and adherence to the new 2006 Eat Smart! nutrition standards in the Sudbury & District areas

Author: LN Ciotoli, Southeastern Ontario Comprehensive Dietetic Internship Program, Northern Region, Sudbury, Ontario.

Objectives: To assist the Sudbury & District area Eat Smart! restaurant award winners continue to meet the revised nutrition standards, to increase awareness of the Eat Smart! Program for restaurant owners and customers, and to ease the application process for potential new award winners. **Methods:** Following the November 2006 Sudbury Eat Smart! Award Ceremony, 2006 restaurant applicants from Sudbury & District Health Unit catchment areas (n=24) were sent an introductory letter inviting their participation in evaluation research. The letter was followed by a phone call to arrange a 15 minute telephone survey. Fifteen restaurant owners completed the telephone survey. The quantitative data were analyzed using Epi Info Version 3.3. Using Microsoft® Word, the qualitative information was analyzed to identify themes in the responses. **Results:** Overall, the restaurant owners felt the Eat Smart! application process was easy and they were satisfied with the promotional materials. Concerns were raised that there was not enough emphasis on what the Eat Smart! program represents. Most customers do not ask about the program as a result. The most challenging nutrition standards to meet were to include at least six choices of vegetables and fruit and to provide one healthier dessert choice. Most restaurant owners felt it was easy to find healthier products and suppliers are able to meet this request. Most participants felt receiving regular nutrition resources would be useful in encouraging staff to promote the program. **Conclusion:** Preliminary analyses have been completed and recommendations are forthcoming for local use, planning, and dissemination.

Title: The impact of increased intervention with a Registered Dietitian and Exercise Physiologist on overall health outcomes of patients attending cardiac rehabilitation at Toronto Western Hospital

Authors: N. Schembri*, S. Stillman*, M. Figliano, T.M. Holloway, J. Madill and M. Brum, Toronto Western Hospital, University Health Network, Toronto, Ontario

Objectives: Cardiovascular Disease (CVD) is the primary cause of morbidity and mortality in Canada, creating a need for improved healthcare. Participation in Cardiac Rehabilitation (CR) programs significantly decreases morbidity and mortality in those diagnosed with CVD. Studies have identified an improvement in health outcomes when dietary or exercise interventions were implemented, however, few studies have focused on the effects of increasing both interventions concomitantly. This study will measure the impact of usual versus intensive intervention on health outcomes of patients at Toronto Western Hospital's CR program. **Methods:** We used consecutive sampling to recruit CR patients. Usual intervention involves counseling by a Registered Dietitian (RD) and an Exercise Physiologist (EP) separately, monthly as per usual care (control group). Intensive intervention involves counseling by an RD and EP weekly (intervention group). Health outcomes will include: waist circumference, weight, dietary and exercise habits. Data will be collected at pre and post intervention. Exercise habits will be assessed using the Duke Activity Status Index and recording the frequency, intensity, time, and type of exercise. Dietary habits will be evaluated with a diet history. **Results:** Currently we have recruited 25 patients during initial assessments; 12 are in the control group (2 females, 10 males) and 13 are in the intervention group (5 females, 8 males). We anticipate that the intervention group will experience improvements in health outcomes; specifically dietary and exercise habits, however, this is yet to be determined. **Implication & Conclusion:** The results of this study may enhance and change CR programs, thereby improving professional practice.

Title: Breastfeeding and dietary recommendations to reduce the risk of developing Celiac Disease in the at-risk infant

Author: CG Salama, Southeastern Ontario Dietetic Internship Program, Kingston, Ontario.

Objective: The growing prevalence of Celiac Disease (CD) in North America has stimulated questions about the affect that early nutrition can play on its development in the at-risk infant. The purpose of this review was to locate and evaluate evidence to support the preventative role of breastfeeding and avoidance of gluten-containing foods (GF). **Methods:** The search strategy from 1983 to February 2007 included Medline, Cochrane, Academic Search Premier, Cinahl, Proquest Research Library, Evidence Based Medicine Reviews, Google Scholar, and reference lists of recent articles. Of 92 articles found 48 were relevant for inclusion and consisted of guidelines, case-control, cohort, observational, and epidemiological studies. The scientific quality of each article was assessed and critically appraised using a defined set of criteria. The evidence found was converted to key practice points and its strength was assessed using an evidence scale of A to D ('good' to 'none'). **Results:** To reduce the risk of CD in at-risk infants, findings revealed fair to limited (B-C) evidence-based recommendations to exclusively breastfeed the infant for the first six months of life, to continue breastfeeding while introducing GF in small amounts at six months of age and to continue breastfeeding for at least one month after GF are introduced. **Conclusion:** While onset of CD can be delayed, it is unlikely that the overall lifetime risk of CD can be prevented. Further studies with long-term outcomes are necessary to further define the role of the aforementioned preventative measures in offering permanent protection against CD. It is important for dietitians to be familiar with the role of breastfeeding and dietary recommendations for CD when counseling parents of at-risk infants.

Title: KFL&A Breastfeeding Policy Staff In-Service Implementation

Author: E Martelluzzi, Southeastern Ontario Dietetic Internship Program, Kingston, Ontario

Objectives: Increase the knowledge of KFL&A Public Health staff of the Breastfeeding Policy and ensure staff are able to identify in-house public health infant nutrition resources. **Methods:**

A literature review, key informant interviews and staff questionnaire were used to collect information on methods of education, presentation formats, adult education needs, resources, attitudes, and policy knowledge. With the guidance of an advisory committee, the information collected was used to guide the development of a staff pilot in-service presented to the Family Health Program. A quick reference card highlighting key policy points and infant feeding resources was created for staff. A post-test questionnaire was used with the pilot-group to determine if the objectives had been met. Breastfeeding Buddies volunteers were also

educated on the policy. An in-service will be provided at a later date for all other KFL&A Public Health staff. **Results:** The initial questionnaire showed that only 35.6% of respondents (n=101)

were familiar with the details of the Breastfeeding Policy. However, 80% of respondents were able to identify 2-3 resources or programs available on infant feeding. The post-test questionnaire showed that 90% of respondents (n=31) were able to identify the resources available. Results also showed staff familiarity with the details of the Breastfeeding Policy.

Conclusion: The pilot in-service met project objectives by increasing the level of knowledge on the policy and awareness of resources and programs available on infant feeding. Future plans for educating all KFL&A Public Health staff will increase overall knowledge and awareness on the policy. This information will be reinforced through an annual email update. All new employees will receive policy information at orientation.

Title: A review of the model of care of diabetes centres where dietitians use medical directives to adjust insulin

Author(s): M Bernardino, D Gendron, S Obiorah, The Ottawa Hospital dietetic internship program, Ottawa, Ontario.

Purpose: To learn about the model of care of diabetes teams that support medical directives for dietitians to adjust insulin. **Description of Process:** A convenience sample of dietitians at diabetes centres across Ontario, currently using (n=3) or pursuing medical directives (n=2) were invited to complete a questionnaire, sent by e-mail, regarding their practices. **Project Summary:** The centres have had dietitians with medical directives to adjust insulin between 0-4 years. This directive was primarily implemented because the dietitians were diabetes educators. All centres require dietitians and nurses interested in obtaining this directive to undergo internal training and complete a certification process. While the model of care varies among centres, generally dietitians make insulin adjustments in follow up appointments related to dietary changes of the patient. Centres report a team approach to follow up assessments, with nurses and dietitians often seeing the patient together. Follow up adjustments are most often done in person or by phone, but also by e-mail and fax. Team members communicate primarily through notes in client's charts, but supporting methods, such as verbal communication, phone, e-mail and fax are also mentioned. **Recommendations & Conclusions:** Dietitians and other health professionals in the diabetes team strongly believe that this medical directive contributes to improved patient care. This information will assist the Ottawa endocrinology diabetes centre in identifying a suitable model of care for nurses and dietitians to work with medical directives to adjust insulin.

Title: Energy requirements of infants and young children with Prader-Willi syndrome: with and without growth hormone therapy

Authors: L Goodwin and J Ornoch, North York General Hospital Dietetic Internship Program, Toronto, Ontario.

Objectives: The energy requirements of infants and young children with Prader-Willi Syndrome (PWS) are unknown. Current practice utilizes energy recommendations based on calories per centimetre of height. This method is not specific to metabolic needs. The objectives of this study were to determine the energy requirements of infants and children with PWS with or without growth hormone therapy, while considering the genetic subtype, and compare these energy requirements to age-matched children in the literature. **Methods:** A retrospective chart review of patients at the North York General Hospital Paediatric Outpatient clinic under the age of seven years with genetically diagnosed PWS (n=22 patients, 32 datapoints). Data collected includes age, gender, height, weight, measured resting energy expenditure (mREE), genetic diagnosis, and growth hormone treatment. Statistical analysis will be utilized to determine if a significant difference exists between measured and predicted energy needs at $p < 0.05$. **Data:** The mREE was determined to be 46.5 ± 12.9 kcal/kg and 6.4 ± 1.9 kcal/cm for the group. This is lower than predictions using the current practice of calories per centimeter of height (61.4 ± 18.7 kcal/kg and 8 kcal/cm) and the WHO standards for age-matched children (53.9 ± 5.6 kcal/kg and 6.4 ± 1.9 kcal/cm). **Anticipated Implications:** The lower metabolic need if confirmed, suggests that infants and young children with PWS may be overfed even prior to onset of hyperphagia if the calories per centimetre standards developed in older patients are applied to this group. Through examination of mREE, energy requirements for proper growth, development and prevention and/or treatment of obesity or undernutrition in infancy and early childhood, can be determined to better guide clinicians in prescribing appropriate amounts of calories for their patients.

Title: Do anthocyanin containing supplements live up to their claims?

Author: RL MacPhee, U.P.E.I. Integrated Dietetic Internship Program, Charlottetown, Prince Edward Island

Objective: Supplements from *Vaccinium ssp.* are being marketed for the potential health benefits of their constituents. The objective of this research was to assess commercial supplements for anthocyanin, phenolic and antioxidant content. **Methods:** Five supplements (2 bilberry, 2 blueberry and 1 cranberry) with claims for anthocyanin content were tested. Total anthocyanin, total phenolics (FCR) and antioxidant capacity (DPPH) were assayed using standard laboratory methods. Results were expressed using descriptive statistics. **Results:** As expected, a positive correlation between total anthocyanin and total phenolics was observed ($r=0.9953$). The 2 bilberry supplements contained the highest amount of anthocyanins (9.5% & 2.1% w/w) and phenolics (0.180 & 0.025 mgGAE/mg dw); however, measured anthocyanin amounts were only 38% and 8.4% of their label claim. Freeze dried blueberry and cranberry product claim only 1/10 of the anthocyanin content of the bilberry products. The measured anthocyanin amounts for these were 48% and 70% of their label claim, respectively. Antioxidant capacity (DPPH) was assessed qualitatively as EC50s were achieved for only 2 supplements. Bilberry products have the greatest antioxidant capacity. However, at high concentrations both products appeared to exhibit pro-oxidant activity. The freeze-dried cranberry and blueberry supplements had antioxidant capacities of 1781.7 and 1893.8 TE, respectively. Generally, blueberry supplements contain more anthocyanins (25 mg/g capsule) than the whole fruit (1.767 mg/g fresh) on a weight basis. However, 10 capsules of blueberry supplement would be needed to provide the same amount of anthocyanins as one serving (72.5g) of whole fruit. **Conclusions:** Measures of total anthocyanins in commercial supplements compared less favourably with label claims. Antioxidant capacity was found to be highest in bilberry supplements. Additional research is needed to confirm these observations.

Title: Feasibility of a fruit and vegetable promotional event at a grocery store in Belleville, Ontario

Author: KA Hogger, Southeastern Ontario Dietetic Internship Program, Kingston, Ontario.

Objectives: An increase in fruit and vegetable selection is an important first step in the promotion continuum to increased consumption. The Hastings and Prince Edward Counties Health Unit (HPECHU) is mandated to fulfill population objectives for increasing fruit and vegetable consumption among community residents. Approximately 80% of buying decisions are made in the grocery store, so that setting is an appealing environment to the Health Unit for nutrition promotion activities. The objectives of this project are to develop a partnership between HPECHU and a local grocery store, and to investigate the feasibility of implementing a fruit and vegetable promotional event in the grocery store environment. Forming a sustainable partnership with the selected grocery store and potentially other grocery stores in communities throughout Hastings and Prince Edward Counties are long term objectives of this project.

Methods: A one-day fruit and vegetable promotional event will be implemented at a grocery store in Belleville, Ontario, in June of 2007. Planned activities include a table top display, taste testing opportunities, literature handouts, prizes and give-aways, and point-of-purchase messaging displayed throughout the store. The event's feasibility will be assessed through feedback and participation from the store owner, store staff and shoppers using process indicators, interviews and questionnaires. **Results:** Results of this project are pending. Findings from the project will be used by public health nutrition staff at HPECHU to assist with future planning for fruit and vegetable promotions in Hastings and Prince Edward Counties.

Title: After discharge, do osteoporotic patients with bone fractures comply with high calcium diet recommendations?

Author: S Girard, M Losier. The Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario

Objectives: The Montfort Hospital in Ottawa Ontario has created a multidisciplinary health care team titled the osteoporosis group. The objective of this project was to determine if osteoporotic patients complied with dietary recommendations made by the registered dietitian in the osteoporosis group. **Methods:** Patients admitted to the rehabilitation unit at Montfort Hospital with a bone fracture induced by osteoporosis (n = 3) were interviewed and provided nutritional counseling by the registered dietitian. The purpose of this initial assessment was to determine calcium intake before diet counseling was provided. Two week and one month post-discharge interviews were conducted over the telephone. The interviews focused on determining calcium intake after diet counseling was provided by the registered dietitian. **Results:** The findings are yet to be analyzed, however, it was found that one out of three participants complied with the high calcium dietary recommendations made by the registered dietitian. Results also revealed that the majority of subjects believed that the amount of time provided with the registered dietitian was adequate and sufficient. **Implications & Conclusions:** The findings from this pilot study may reveal some valuable information about patient compliance to diet recommendations.

Title: The effect of a fiber supplementation on laxative use among long-term care residents: A Systematic Review

Authors: P. Bansal and V. Monty. The Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario.

Background: Constipation is a common complaint among elderly long-term care residents as it negatively impacts quality of life and perpetuates the need for health care and intervention.

Objective: The purpose of this systematic review was to evaluate the effectiveness of dietary fiber supplementation in the treatment of constipation among long-term care residents. **Data**

Sources: Published literatures were identified through the CINAHL, Cochrane, Medline and Ageline databases. **Study Selection Criteria:** Trials conducted in Canada, the United States of

America and Europe, and only those studies published in the English language from 1997 to 2007 were eligible for inclusion. Abstracts were screened by two independent reviewers for

interventions designed to investigate the effects of dietary fiber supplementation on the treatment of constipation or its effects on laxative use among institutionalized elderly persons. A

trial was included if all participants were long-term care residents, with a mean age of 65 years of age or older and being treated for constipation. **Results:** Results from this systematic review

are pending analysis of identified published literature. **Implications & Conclusions:**

Supplemental dietary fiber may offer a preventative strategy for constipation management that is less invasive than pharmaceutical laxatives. The findings of this systematic review may unveil

great insight for enhancing the health status of institutionalized elderly persons.

Title: Determining the need for a Meals-on-Wheels Program in the Municipality of Greenstone

Author: LC Smith, AM Power, The Ottawa Hospital Internship Program, Geraldton, Ontario.

Objective: The purpose of this study is to assess the nutritional risk of seniors aged 60 and older in the Municipality of Greenstone to determine if there is a need for a Meals-On-Wheels (MOW) Program. **Methods:** Homebound senior's age 60 years of age and above were recruited through convenient sampling five rural communities in the Municipality of Greenstone, in Northwestern Ontario. Participants (n=116) completed a questionnaire designed for purposes of this project in addition to the SCREEN II questionnaire developed by Heather Keller. The need for a MOW program is based on the number of seniors at risk of malnutrition according to common nutrition indicators including weight change, restricting food, difficulty chewing, cooking skills, access to shopping, and poor appetite. Additional key factors considered were interest in MOW, availability of sufficient funds and living situation. **Results:** Sixty eight percent of participants are at high risk for malnutrition, according to SCREEN II questionnaire scoring < 50. Chi square analysis indicates that (significant at the $p < 0.05$) fifty two percent of seniors at risk for malnutrition are interested in using MOW. A significant association also exists ($p < 0.05$) between seniors living alone and interest in receiving MOW. Seventy six percent of seniors have sufficient finances for food, thirty five percent of seniors live alone, seventy one percent indicated they have access to transportation and thirty five percent of seniors enjoy cooking their own meals. **Implications & Conclusions:** The majority of participants are currently at risk for malnutrition and indicated interest in receiving food delivered by MOW. This meal delivery program would be beneficial for seniors living within the communities of Greenstone.

Title: Promoting healthy eating in the workplace

Author: MG Gotkind, Southeastern Ontario Comprehensive Dietetic Internship Program, Kingston, Ontario.

Objective: To use the workplace as venue for an opportunity to promote healthy eating.

Methods: A pre-test questionnaire was used to collect employee knowledge of basic nutrition information (such as: fat, fibre, sugar) and benefits of healthy eating in the workplace. The awareness raising intervention delivered healthy eating in the workplace messages through a display board, pamphlets, resources and point-of-purchase messaging. The post-test evaluation assessed the process of awareness raising intervention through questions related to the display board and point-of-purchase messaging. **Results:** The pre-test questionnaire revealed that respondents lacked knowledge about appropriate fat intake per day, as well as, fat and fibre content of snack bars. The post-test evaluation indicated that respondents took positive note of the display board and point-of-purchase messages. In addition they indicated an interest to access healthier food options at the cafe. **Conclusions:** Health promotion efforts for sustained change require a mix of intervention strategies over time. However this one-time awareness raising pilot did indicate that follow-up nutrition education and changes to food in the cafe would be beneficial. As well, this project could be replicated in other workplace venues as a contribution to healthy eating promotion efforts. Employee desire for change indicates the need to involve employees in the decision making process involving their health.

Title: Consumption of liquid meal replacements in hospitalized patients: an observational study

Authors: C Dow, M Graves, T McFadden, J Ng, K Sam, & A Vogt, University of British Columbia Dietetic Internship Program, Vancouver, British Columbia.

Objectives: Malnutrition has been associated with greater usage of health resources, decreased quality of life, and increased morbidity and mortality. A common method of preventing or treating malnutrition is the prescription of liquid meal replacements (LMR). The objective of this observational study was to compare the volume of LMR prescribed to patients against actual intakes in an acute-care hospital. **Methods:** LMR tetras were collected over a three-day period at Royal Columbian Hospital during breakfast, lunch and dinner. The collection of LMR from patient rooms occurred per normal procedures specific to the hospital. Residual LMR was weighed and used to derive volumes of LMR consumption. The time of delivery, ward location and flavour (vanilla, chocolate or strawberry) of LMR tetras were recorded. **Results:** A total of 83 LMR tetras out of 136 distributed (61%) were collected with an average volume of 51.1% consumed. However, the majority of LMR tetras were 0-20% (32 tetras) or 80-100% (35 tetras) consumed. The highest consumption rates were associated with dinner-time delivery and vanilla flavoured LMR. Additionally, 31% of LMR tetras were unopened. **Conclusion:** Given the high number of unopened or minimally consumed tetras, LMR prescription follow-up is indicated. Differences in consumption rates with various LMR flavours and across mealtimes suggest patient's preferences should be assessed to optimize intakes. As consumption data was not collected according to patient, consumption patterns on an individual basis were not studied. Future studies should be of greater duration and size and focus on factors affecting individual LMR consumption and evaluate the efficacy of LMR prescription in preventing and treating malnutrition.

Title: Does ideal body weight, as determined from the 50th Body Mass Index percentile correspond to body weight at resumption of menses in female patients with Anorexia Nervosa attending the pediatric outpatient clinic at Hamilton Health Sciences?

Author: PM Seifried & DC Smith, Hamilton Health Sciences Dietetic Internship Program, Hamilton, Ontario.

Objectives: In treating outpatient pediatric Anorexia Nervosa (AN) patients at Hamilton Health Sciences, ideal body weight (IBW) is calculated in order to determine weight gain goals and resumption of menses (ROM) is used as a marker for return to physical health. The objectives of this study are to determine if IBW and weight at ROM correlate, to determine the number of patients who resume menses upon reaching the 50th Body Mass Index (BMI) percentile and to determine if the 50th BMI percentile is an appropriate estimate IBW in patients with AN. **Methods:** A retrospective chart review of patients who attended the outpatient eating disorders clinic between 1999 and 2006 was conducted. One hundred and fifty-two patient charts were reviewed to determine if they met the inclusion criteria. Patient charts were included in the study if they were: female, diagnosed with AN, and had achieved ROM or menarche while being enrolled in the program. **Results:** Thirty-eight percent (n=58) of charts met the inclusion criteria for analysis in our study. Less than 33% of patients (n=19) achieved menstruation at a weight below the 24.99th BMI percentile. The majority of patients (50.0%) resumed menses or achieved menarche at a BMI percentile between the 25th and 49.99th. Less than 18% of patients (n=10) achieved menstruation between the 50th and 74.99th BMI percentile. **Conclusion:** Using the 50th BMI percentile to determine IBW appears to overestimate the weight at which ROM should occur and therefore overestimates weight gain goals.

Title: What are the weight changes during pregnancy for mothers in the Hamilton Prenatal Nutrition Project?

Authors: K Byron and J Pablo, Hamilton Health Sciences Dietetic Internship, Hamilton, Ontario.

Objectives: 1) To determine whether the Hamilton Prenatal Nutrition Project (HPNP) participants have gestational weight gains within Health Canada's recommended ranges for their BMI. 2) To determine the relationship in the sample between maternal weight gain and infant birth weight. **Methods:** A questionnaire was developed to record pre-pregnancy height and weight, the weight of the mother at delivery, and the length and weight of the baby. Mothers with newborns are eligible to fill out the entire survey. Mothers due prior to June 15, 2007 may fill out the first half of the questionnaire and will be called after their due date to complete the remainder of the questions. Researchers recruited participants across eleven HPNP groups. Statistical analysis will describe the population and determine the percentage of mothers gaining below, at, or above their recommended gestational weight levels. Sample size will be between 10 and 100. **Results:** To be determined July 2007. **Conclusions:** The results of this research will impact further HPNP programming.

Title: A quality assurance audit on feeding practice guidelines for infants weighing less than 1,000 grams

Authors: KJ Goheen, SK Smith, Hamilton Health Sciences Dietetic Internship Program, Hamilton, Ontario

Objectives: To perform a quality assurance audit on feeding practices in infants weighing <1,000 g; to compare adherence to the Feeding Practice Guidelines (FPG) with respect to the diagnosis of necrotizing enterocolitis (NEC); and to compare the presence of identified NEC risk factors in NEC and non-NEC infants. **Methods:** Subjects included infants that weighed <1,000 g who did not expire or have a diagnosis of NEC during the first 48 hours of life (n = 193). A retrospective chart review was completed to gather data on FPG's and identified NEC risk factors. Feeding data was collected until full feedings and, for those with fortified breast milk, full fortification was reached or the infant was discharged from the NICU. **Results:** Mean weight and age of the subjects was 776.9 g and 26 weeks. Twenty-three (11.9%) infants were diagnosed with NEC. Preliminary analysis of feeding data indicates that 68.9%, 11.7% and 18.9% of infants were fed breast milk, formula or a combination respectively. Of those infants that were fed breast milk, 70.3% had human milk fortifier added to their feed. The median day of life trophic feeds were initiated, human milk fortifier added, full fortification reached, and full feeds attained was 5, 35, 44, and 36 days respectively. Median number of days that feeds were held for feeding intolerance was 6 days. In total, 3.7% of the infants were fed according to the FPG's. **Conclusion:** Initial statistical analysis indicates that the FPG's were not being followed in this population. Further statistical analysis will be performed to investigate differences in feeding practices and presence of risk factors between NEC and non-NEC infants.

Title: Prospective pilot study of the effect of pectin on diarrhea in ICU patients receiving fibre-containing enteral feeds

Authors: J Kleinfeldt, S Warden, C Basualdo-Hammond, Capital Health Integrated Dietetic Internship, Edmonton, Alberta.

Objectives: The purpose of this study is to evaluate the effectiveness of the addition of pectin to tube feeds in managing diarrhea in ICU patients. This pilot study will assist in developing a more comprehensive study to support or change current standards of practice in Capital Health with respect to the use of pectin in tube fed patients.

Methods: *Sampling:* Patients (n=20) from general systems, neurology, or cardiac ICU wards at the University of Alberta Hospital will be eligible to participate if they are on tube feeds, experiencing diarrhea, and identified as needing pectin according to Capital Health standards of practice. *Data Collection:* There will be a 3-day washout where the patients receive the study's standard fibre-containing formula while their nurses record patient data based on study variables. After washout, patients will be randomized to receive 40ml pectin per day (2 x 20ml dose) or 40ml of gelatine (the placebo) for the next 7 days. There will be 10 patients in each study group. After 7 days, patients will resume treatment according to clinical practice standards. **Results:** This study is expected to provide insight into the uncertain benefit of the addition of pectin to tube feeds and its ability to decrease the severity of diarrhea in exclusively tube fed patients in critical care. **Implications & Conclusion:** The theoretical advantages of adding soluble fiber to enteral formula are being challenged. If pectin does not show beneficial effects on diarrhea in critically ill, enterally fed patients, then further more extensive studies will be warranted to confirm those results.

Title: Prevalence of hypoalbuminemia and associated factors in patients undergoing hemodialysis at St. Michael's Hospital: a retrospective chart review

Author(s): DK Gabrielson, KT Imfeld, P Darling, S Donnelly, D Cook, St. Michael's Hospital Dietetic Internship Program, Toronto, Ontario

Objectives: Low albumin (<35g/L), affecting 3-31% of hemodialysis patients, is associated with increased risk of morbidity and mortality. The objectives of this study were 1) to determine the prevalence of low serum albumin (<35 g/L) in patients undergoing hemodialysis at St. Michael's Hospital (SMH) and 2) to examine the associations between low serum albumin and indicators of nutritional status, dialysis modality and adequacy, inflammation, acidosis, and co-morbid conditions such as diabetes, and CVD in patients undergoing hemodialysis at SMH. **Methods:** A retrospective chart review of in-centre hemodialysis patients undergoing either intermittent hemodialysis (IHD), nocturnal hemodialysis (NHD), or short daily hemodialysis (SDHD) at SMH in July 2006 was conducted. Clinical data and laboratory data was extracted using the SMH Diabetes Comprehensive Care Program (DCCP) Database and from patient charts. Frequencies, means, medians, sd and interquartile range will be used to describe the sample. Logistic regression will be used to examine relationships between low serum albumin and each variable. **Results:** Data was collected for 213 hemodialysis patients and data analyses are ongoing. **Implications & Conclusions:** Presently, there is no data regarding the prevalence of hypoalbuminemia and associated factors in the hemodialysis population at St. Michael's Hospital. This research will provide new descriptive information on the associations among serum albumin, indices of nutritional status and co-morbidities which can contribute to Continuous Quality Improvement initiatives in the future.

Title: Effect of the ketogenic diet in reducing seizure frequency among children with epilepsy followed in the neurology clinic of the Children's Hospital of Eastern Ontario

Authors: K Cheung, CP Mun, C Kennedy, K Wadden, S Lamont, J Beauchamp, The Ottawa Hospital Internship Program, Ottawa, Ontario

Objectives: The ketogenic diet (KD) is a therapy used in the treatment of children with difficult-to control epilepsy. This study evaluates the effect of the KD on difficult-to-control seizures among children treated for epilepsy at the Children Hospital of Eastern Ontario. The primary objective of this study is to compare the number of seizures experienced by patients prior to and one year after the initiation of the KD. Success is defined as achieving greater than or equal to 50% reduction in seizure frequency, one year after diet initiation. **Methods:** A retrospective chart review was conducted on patients admitted to the hospital from November 1999 to February 2006. Of the 20 charts reviewed, 15 provided quantifiable reports of seizure frequency and were included in the analysis. Data collected included seizure frequency at baseline, 3, 6, and 12 months post-initiation of the KD, age at KD initiation, gender, seizure type, therapy duration and reason for KD discontinuation. **Results:** Nine out of fifteen (60%) patients initiated on the KD remained on the diet after one year. Of these nine patients, all have achieved greater than 50% reduction in seizure frequency. There were no significant correlation between seizure reduction and age, gender or seizure types. **Conclusions:** The success rate observed is consistent with the results reported by other Class II studies. Overall, the collective research findings supports the use of the ketogenic diet as a treatment for children with difficult to control epilepsy.

Title: Total calcium intake of pregnant women including supplements and calcium based antacids

Authors: CA Mannion, Faculty of Nursing, University of Calgary, Calgary, Alberta; RA Holmes, University of Alberta Integrated Dietetic Internship Program, Calgary, Alberta

Objectives: Heartburn is a common complaint occurring in 50% of pregnancies.

Physicians routinely recommend antacids on an “as needed” (PRN) basis and have been known to suggest calcium based antacids as a calcium supplement. This may provide supplemental calcium to a pregnant woman’s diet and prenatal vitamin regime.

We were interested in the contribution of antacids and supplements to the dietary calcium intake of pregnant women, which on average, is known to be below the dietary

reference intake (DRI). **Methods:** Of 1100 prenatal attendees, 724 completed an anonymous survey on antacid and vitamin use and fluid milk consumption. A modified

food frequency questionnaire (FFQ) was administered to 264 participants to estimate dietary calcium intake. **Results:** Of the 350 women who took calcium based antacids,

3.4% used them alone and regularly as a calcium supplement. The FFQ indicated 18% of participants fall below the adequate intake (AI) of 1000 mg (mean=791mg,

median=762mg) and 12% exceeded the upper limit (UL) of 2500mg for calcium (mean=3104mg, median=3076mg) from dietary intake alone. More than half (56.5%)

consumed \leq 2 cups of milk/day, just meeting the current food guide recommendation for women (19-50y). Almost all (97%) took a prenatal vitamin/mineral supplement. Calcium

was the most common single nutrient supplement used (23%). **Conclusion:** Many pregnant women may not meet the AI for calcium from dietary intake. Using antacids as

a calcium supplement may assist some pregnant women to meet the AI for calcium, but may also increase their risk of exceeding the UL without daily dose limitations or

knowledge of upper limits when taken PRN.

Title: Parenteral Nutrition - Prescription and Usage in the Saskatoon Health Region

Author: C Bell & K Delorme-Greyeyes, University of Saskatchewan Dietetic Internship Program, Saskatoon, Saskatchewan.

Objectives: To examine if there is more inappropriate use of at Saskatoon City Hospital and St. Paul's Hospital versus Royal University Hospital, where a dedicated Nutrition Support Service governs Parenteral Nutrition prescription. **Methods:** A retrospective chart review was done on adult patients (n = 59) who were 18 years of age and older, and were on Parenteral Nutrition in the year 2006 at Royal University Hospital (n = 20), St. Paul's Hospital (n = 19) or Saskatoon City Hospital (n = 20). **Results:** An indication for Parenteral Nutrition could not be identified in 33.8% of the subjects. Ninety percent of the cases where the indication for Parenteral Nutrition could not be identified were at St. Paul's Hospital and Saskatoon City Hospital. **Conclusion:** It is suggestive that there is inappropriate use of Parenteral Nutrition within the Saskatoon Health Region as well as a definite lack of documentation of indication. It is also suggestive that there is more appropriate use of Parenteral Nutrition at Royal University Hospital where a dedicated Nutrition Support Service governs Parenteral Nutrition prescription.

Title: Baseline Knowledge of Foodservice Employees

Authors: C. Padbury and E. Ward, Saskatoon Health Region Dietetic Internship Program, Saskatoon, Saskatchewan.

Objectives: To evaluate the baseline knowledge of foodservice employees within the Saskatoon Health Region on different areas relating to foodservice in long-term care and to determine to which areas training efforts should be targeted. **Methods:** The

knowledge of foodservice employees was assessed using a multiple-choice questionnaire. Three-hundred and twenty surveys were distributed between all long-term care facilities within the Saskatoon Health Region. Thirty-three food service employees completed the questionnaire. Employees were categorized according to their years of foodservice experience and tested on their knowledge of different areas pertaining to foodservice including: Mealtime Assistance Training, Back Safety, Policies and Procedures, Food Allergies, Texture Modified Diets, Food Safety and WHMIS.

Results: The main knowledge areas that were determined to be areas of weakness for many foodservice employees, regardless of their years of experience, included Mealtime Assistance Training (66.7% correct), Policies and Procedures (65.2%), Food Safety (58%) and Back Safety (23%). WHMIS, Food Allergies and Texture Modified Diets scored higher, with results ranging from 71.5% to 86.4% correct. There did not appear to be any trend between years of experience in foodservice and knowledge in any of the areas tested. **Conclusions:** The results of this pilot study will be used to determine revisions to the knowledge questionnaire. This study should be repeated once identified changes to the questionnaire have been made. Additional data collection is needed to fully assess the baseline knowledge of foodservice workers within the Saskatoon Health Region.

Title: The feasibility of vitamin D fortification of beverages in long-term-care facilities

Author: S. Schonfeld, T. Sander, R. Fontaine, Saskatoon Health Region Dietetic Internship Program, Saskatoon, Saskatchewan.

Objectives: The Saskatoon Health Region (SHR) is undertaking various health initiative strategies to improve the health of all residents, including the aged population living in long-term-care (LTC) facilities within the region. The objective of this project was to assess the feasibility of fortifying beverages within LTC facilities with vitamin D.

Methods: Surveys to 28 facilities regarding current beverage practices were mailed to all food service leads, managers, directors and dietitians working at LTC facilities within the SHR. The surveys focused on the frequency, amount, and type of milk and juice offered to LTC residents. Participants were also encouraged to add any comments regarding their beverage practices that the survey may not have addressed. An in-depth literature review regarding vitamin D fortification, deficiency and levels of vitamin D in LTC residents was also performed as part of the project. **Results:** A total of 5 surveys were returned and tabulated. Of the five facilities, juice and milk was offered 3-6 times per day. The largest amount consumed per resident varied from 500-2000ml/day. The smallest amount consumed per individual was 0-250ml/day. Only 1.3-2.5% consumed 0ml/day. The amount of residents who never consume juice was 5.4%. The range of residents who never consume milk was 0-22.5%. Only the milk served as beverages was considered in the results. Due to several limitations, respondents were only able to supply estimated intakes for a 24hour period. **Conclusion:** Vitamin D fortification of juice appears to be a potential safe method for correcting and preventing vitamin D deficiency. Future research needs to be directed towards determining safe and effective fortification in beverages such as juice.

Title: Exploring Infant Nutrition and Moving Toward Solutions

Author: BD Partyka, Saskatoon Health Region Internship Program, Saskatoon, Saskatchewan

Objectives: This study addresses infant nutrition and food security in Saskatoon. Specific objectives of the study are to (a) assess the current situation regarding access to all forms of infant nourishment; (b) understand if any challenges regarding access to infant nutrition exist; (c) determine the current use and effectiveness of programs and services related to infant nutrition; and (d) identify what can be done to improve food security for all infants in Saskatoon. **Methods:** Semi-structured focus groups (n=9) and interviews (n=9) were facilitated with parents and community stakeholders. Participants were asked to respond to open-ended questions that explored how infants in Saskatoon were nourished, if any challenges regarding access or provision of adequate nutrition existed, and how the community could support the healthy growth and development of infants. Focus group and interview transcripts were reviewed using thematic analysis and emerging themes were categorized. **Results:** This study confirms that infant food security is a concern in Saskatoon. Key barriers that limit a family's ability to successfully breastfeed or attain other forms of infant nourishment include knowledge of feeding practices, lack of breastfeeding support, access and affordability of infant formula, transportation and poverty. Infant nutrition and food security can be improved by expanding educational and programming opportunities to families, increasing breastfeeding support, and identifying acceptable means to provide emergency formula. Successfully addressing infant food security must also include discussion and movement in social policy and family food security contexts. **Implications and Conclusion:** Communities must empower new parents with education, support dignified access to resources and address the root causes of food insecurity. In doing so, community members will be supported in lifelong health and development.

Title: The Trend toward a Resident-Directed Approach to Foodservice

Author: R Hartl, Saskatoon Health Region, Saskatoon, Saskatchewan

Objective: The objective of this project was to carry out an in-depth literature review of resident-centred and resident-directed care in relation to foodservice in long term care.

Methods: Searched Medline English articles and an internet search using the terms “resident-directed”, “foodservice”, “resident-centred”, “satisfaction”, “resident councils”, “Eden philosophy” and “selective menus” and other relevant terms. Searched Ebsco Host databases using the search terms food service and long term care. **Results:** Relevant information was located in areas of published literature such as nursing journals as well as journals of gerontology and nutrition for the elderly. Main findings in the literature revealed that foodservice is moving toward becoming more resident-centred approach, with little evidence of resident-directed food service. The literature suggests that more food service decisions are being based on the best interest of the residents. **Conclusion:** The review of the literature reveals that there is limited research regarding foodservice as it relates to resident-centred or resident-directed care in long term care facilities. More research is needed to assist long term care food service departments in the development of strategic plans to become more resident-centred and resident-directed.

Title: Nutritional assessment of pregnant women in an acute care centre

Authors: E Buzaglo, J Robinson, E Love, C Maxwell, R Tzianetas, J Wong.
Mount Sinai Hospital Comprehensive Dietetic Internship Program, Mount Sinai Hospital,
Toronto, Ontario

Background: Adequate weight gain and food intake during pregnancy promotes a healthy outcome for the mother and infant. To help achieve this goal, weight gain and food intake should be within the recommended guidelines to be associated with the best outcome for infants in terms of birth weight, and for mothers in terms of delivery complications and postpartum weight retention. To date, the majority of the research investigating the Institute of Medicine weight gain recommendations has been evaluated with American populations with limited research evaluating Canadian populations, specifically multicultural urban regions. In practice, Health Canada's guidelines for weight gain and nutrient intake during pregnancy are promoted. As such, there is a gap in the knowledge as to whether current Canadian populations gain weight during pregnancy according to the Institute of Medicine or Health Canada's guidelines. **Objectives:** To determine if pregnant women from a downtown Toronto acute care centre are gaining within the energy and weight gain recommendations established by the Institute of Medicine (1990) and Health Canada. **Methods:** Seventy-five pregnant women will be recruited from a Toronto acute care centre and complete a 3-day food diary and a food frequency questionnaire (Block 1998) during their 2nd (15th – 24th week) and 3rd (28 – 37th week) trimesters of pregnancy. Demographic and anthropometrical data will be extracted from patient antenatal records. Ethical approval was received from Ethics Review Board at Mount Sinai Hospital. Dietary intake analysis will be performed using the Food Processor SQL Edition, version 9.8.1, ESHA Research. Statistical analysis will be performed with SPSS version 12.0. **Results:** Data is being collected and conclusions are pending.

Title: Evaluation of Enteral Feeding Protocol Goals in the Mount Sinai Hospital Intensive Care Unit

Authors: A Slichter, K MacEachern, R Tzianetas, J Wong. Mount Sinai Hospital Comprehensive Dietetic Internship Program, Toronto, Ontario.

Background: Delivery of enteral nutrition (EN) is often inadequate in the intensive care unit (ICU) due to interruptions in feeding. Two goals of the enteral feeding guide in the ICU at Mount Sinai Hospital (MSH) are; initiate EN within 24-48 hours of admission, and deliver > 90% of required calories daily. **Objective:** To determine whether the two goals for EN delivery are being met. **Methods:** A retrospective chart review of enterally fed patients admitted to the ICU at MSH from June 2006 until 65 patients were identified. Patients 18 years of age or older that were admitted for >72 hours to the ICU were screened for inclusion in the study. Patients were included in the study if they received EN for at least 24 hours, were mechanically ventilated during their stay and did not receive other modes of nutrition support prior to or during the use of enteral nutrition. Patient records were followed until discontinuation of EN, discharge from the unit, death, or up to a maximum of 12 days. **Results:** To date 55 charts are reviewed and data collection is ongoing. **Implications/Conclusions:** Studying the initiation time of EN and the adequacy of EN delivery in the ICU is important to the adult critical care team at MSH. The descriptive data will provide information that will be used to improve processes in the ICU.

Title: Post discharge NICU feeding practices and factors that influence caregivers' feeding decisions of preterm infants

Authors: A Broad, T Hornung, J Kidd, D Bilan, N Ferrara, R Nasser Regina Qu'Appelle Health Region Dietetic Internship Program, Regina, Saskatchewan.

Objective: The Regina Qu'Appelle Health Region (RQHR) is a Mother –baby friendly facility, encouraging breastfeeding before any other feeding practices. Research indicates that breast milk for preterm infants may not be sufficient in meeting the infant's needs for optimal growth. The purpose of this study was to determine if caregivers of preterm infants (<34 weeks) discharged from the NICU at Regina General Hospital follow nutrition recommendations provided by health care professionals and to determine the factors that influence caregivers' feeding decisions. **Methods:** Caregivers of preterm infants (n=20) were mailed out an information letter one week prior to a phone survey taking place. The survey consisted of 13 open-ended questions regarding post-discharge and current feeding practices and factors that influence feeding decisions. Demographic information of preterm infants was collected once caregivers provided consent to participate in the study. **Results/Discussion:** Nine out of the 11 caregivers who participated in the survey received post-discharge feeding advice from the NICU staff. Seven out of the nine caregivers that received education from the NICU staff about how to feed their infants were able to feed their infants the way in which the NICU staff suggested. Five of the 11 caregivers stated that advice from other health care professionals (pediatricians, public health nurses, family doctors and other dietitians) affected their feeding decisions after discharge of the NICU. **Conclusion:** Not all caregivers of preterm infants (<34 weeks) follow the feeding recommendations provided by the NICU dietitian/NICU staff. The leading factor influencing caregivers' feeding decision post-discharge of the NICU is advice from other health care professionals.

Title: Assessment of energy and protein recommendations for pancreatitis, spinal cord injury, and multiple trauma

Authors: M Flaman, J Kambeitz, K Pfeifer, D Climenhaga, J Bunney, R Nasser Regina Qu'Appelle Health Region Dietetic Internship Program, Regina, Saskatchewan

Objective: To determine if protein and energy requirements in the Regina Qu'Appelle Health Region (RQHR) Dietitian Handbook for pancreatitis, spinal cord injury, and multiple trauma are valid and evidence-based. **Methods:** A review of literature from 1975-2006 was conducted using MEDLINE. Inclusion criteria were date published (1975-2006), primary research article, human adult subjects, applicable to disease state and nutrition (energy and/or protein requirements). Studies were critically evaluated and assigned a level and grade of evidence. The strengths and limitations of the studies were used to make recommendations. **Results:** No recommendations were made for pancreatitis. For acutely injured individuals with paraplegia and quadriplegia, it should be considered that energy could be up to 54% less than predictions of standard formulas. It should be considered that 28 kcal/kg/day and 23 kcal/kg/day be used when calculating energy requirements for paraplegics and quadriplegics, respectively. For individuals mechanically ventilated with multiple trauma, it should be considered that 27 kcal/kg body weight/day could be used up to three days post injury. **Conclusions:** Twenty eight studies met the inclusion criteria. Twenty six of these studies were Level 3, Grade C, one was Level 1, and one was Level 2. Recommendations were based on studies with Level 3, Grade C evidence.

Title: A Survey of Peripheral Parenteral Nutrition Practices in Canada

Authors: M Brasnett, J Code, B Poole, A Stevenson, J Striha, R Nasser, Regina Qu'Appelle Dietetic Internship Program, Regina, Saskatchewan.

Purpose: Hyperosmolar peripheral parenteral nutrition solutions increase the risk of peripheral vein thrombophlebitis, which can potentially be minimized with the addition of heparin and hydrocortisone. The purpose of the project is two-fold: 1) To determine current Canadian practices for peripheral parenteral nutrition regarding heparin, hydrocortisone, and osmolarity; 2) To determine whether these current practices are allowing clinicians to meet the energy and protein requirements in adults requiring short-term nutrition support (i.e., less than 14 days). **Methods:** A 20-item multiple choice and qualitative survey was emailed to 201 clinical nutrition managers of Canadian acute care hospitals with greater than 100 bed capacity. Managers were asked to forward the email to Dietitians working in the areas of surgery, intensive care, medicine or oncology. **Results:** A 13% response rate was obtained. Seventy four percent of respondents used PPN in their facility, with 80% using PPN for less than 7 days. Only 5 dietitians use heparin with PPN whereas no respondents use hydrocortisone. Nine dietitians used less than 900 mOsm/L PPN solutions while 7 used greater than 900 mOsm/L. Eighty percent of respondents indicated PPN did not meet their client's energy and protein requirements. **Discussion:** Although heparin and hydrocortisone can be used as prophylaxis for peripheral vein thrombophlebitis, respondents who used heparin were still conservative with osmolarity (< 900 mOsm/L) and length of PPN administration (< 7 days). Meeting energy and protein needs via PPN is an ongoing challenge for clinicians due to osmolarity restrictions. **Conclusions:** At this time is not advised that RQHR use heparin or hydrocortisone with PPN despite the potential benefits of these agents in prolonging PPN administration.

Title: Surrogate Decisions Makers Perceptions of Percutaneous Endoscopic Gastrostomies and Percutaneous Endoscopic Jejunostomies

Authors: H Lines, M Okwengu, S Wan, C Dunphy, J Sanden, R Nasser Regina Qu'Appelle Health Region Dietetic Internship Program, Regina, Saskatchewan

Objectives: Recent studies have shown that the use of long term tube feeding has increased substantially. The Dietitians in the Health Region would like to determine the perceptions of surrogate decision makers regarding PEG/PEJ placement in their loved ones.

Methods: A 25 item survey was developed that consisted mainly of closed ended questions and some open ended questions regarding length of time to eat before PEG or PEJ placement, health professionals who provided support or guidance, and quality of information provided to caregivers. Surrogate decision makers were mailed a survey if they had a family member who 18 years of age and older, with a PEG or PEJ for greater than 6 months were included in the study. The Dietitian who works with clients with PEG or PEJ mailed an information letter and the survey to surrogate decision makers.

Results: Seventeen out of thirty four surrogate decision makers completed the survey. Surrogate decision makers perceived that their loved ones had swallowing difficulties, choking, and weight loss prior to PEG/PEJ placement. Some of the perceived complications post PEG/PEJ placement were nausea, vomiting, diarrhea and mechanical problems. The physician was perceived to provide information on the risks and benefits regarding PEG/PEJ placement. The majority of surrogate decision makers would make the decision regarding PEG/PEJ placement again. Most individuals felt the procedure for their loved one was necessary and that there were no other options.

Discussion: There is a need for more education to provide surrogate decision makers with more information on PEG/PEJ placement.

Conclusion: Dietitians may play a more active role in educating surrogate decision makers.

Title: Validation of the Block fat/sugar/fruit/vegetable screener in a cardiac rehabilitation setting: A pilot study.

Author(s): JL Brown¹, M Graham², L Beaton², M Slovinec-D'Angelo². Ottawa Hospital Dietetic Internship Program, Ottawa, Ontario¹ and the University of Ottawa Heart Institute, Ottawa, Ontario².

Background: Brief dietary questionnaires are needed to guide patient education and outcome evaluation in Cardiac Rehabilitation (CR); there is a lack of validated questionnaires appropriate for CR settings. The newly developed *Block Fat/Sugar/Fruit/Vegetable Screener* (Screener) is a brief 50-item questionnaire that generates estimates for saturated fat (SF), Trans fat (TF), total sugar (TS), fruits and vegetables (FV). **Objectives:** To assess the reliability and validity of the Screener as a pilot to a larger validation study being conducted at the University of Ottawa Heart Institute's Prevention and Rehabilitation Centre (HIPRC).

Methods: Participants (N=25, 72% male, M age = 62) recruited from the HIPRC between November 2006 and January 2007 were asked to complete the Screener and a modified version of the *Block 2005 Food Frequency Questionnaire* (FFQ) at baseline and 2 weeks later. Pearson correlations were used to assess the test-retest reliability of Screener nutritional categories and the validity of Screener baseline estimates in predicting nutritional estimates obtained from the FFQ at 2 weeks. **Results:** The content of the Screener was representative of the FFQ. Test-retest correlations for the 4 Screener categories were good, ranging from .59 for SF to .79 for TS. Predictive validities of the categories were acceptable, ranging from .43 for TF to .68 for FV. **Conclusions:** Preliminary results from this pilot study suggest that the Screener provides reliable and valid estimates of SF, TF, TS and FV. The Screener would be a very useful nutritional tool for the CR setting, but data from a larger sample are required to establish the psychometric integrity of this instrument.

Title: Prevalence of abnormal vitamin A, D and E levels in a pediatric cystic fibrosis population

Authors: N. Al-Halabi, D. Drury, McGill Professional Practice (Stage) in Dietetics, Montreal Children's Hospital, Montreal, Quebec.

Purpose: The primary objective of this study was to document the prevalence of hypo- or hyper- vitaminosis A, E and D in pediatric, pancreatic insufficient (PI) cystic fibrosis (CF) patients on recommended levels of routine vitamin supplementation. The secondary objective was to investigate the relationship among abnormal vitamin levels, age and gender. **Methods:** A cross-sectional descriptive, retrospective chart review was conducted in all 63 children (37 M/26 F) meeting the inclusion criteria (0-18 years of age and PI) from the Montreal Children's Hospital CF clinic. Descriptive statistics and Pearson correlations were performed using Statistica version 6.0 (StatSoft Inc, Tulsa, OK). **Results:** Our results showed abnormal vitamin status in a relatively large proportion of CF children (see Table below). Neither age nor gender was associated with fat-soluble vitamin status although there was a non-significant trend for vitamin E levels to be higher in females than males.

	Normal	Hyper	Hypo	At sub- or supra-optimal clinical risk	Reference range
Vitamin A	68%	2%	3%	27% (between 0.7-0.9 or 1.5-2.5 umol/L)	0.7-2.5 umol/L
25-OH vitamin D	30%	0%	25%	44% (50-75 mmol/L)	75-113 umol/L
Vitamin E	33%	38%	5%	24% (between 10-13 or 21-24 umol/L)	10-24 umol/L

Conclusion: Our results showed a prevalence of 24% abnormal vitamins levels. Only 5% of vitamin A levels were abnormal versus 25% of vitamin D levels, all of which were low and 43% of vitamin E levels, most of which were high. Neither age nor gender was associated with fat-soluble vitamin status. These results suggest that recommended routine vitamin supplementation may be excessive for vitamin E and in some cases, for vitamin A, both which have potential toxicity. This data supports recent reports of hypervitaminosis E in a high proportion of CF children.¹ Subclinic vitamin D deficiency remains highly prevalent.

¹ Huang SH, Schall JI, Zemel BS, and VA Stallings. Vitamin E status in children with cystic fibrosis and pancreatic insufficiency. *JPediatr* 148; 2006: 556-559