



### OR 01 - Challenges in nutrition management of patient at risk of refeeding syndrome: A Case Study

*Hui Wen, P., Jazlina, S., Zalina, A.Z.*

*Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia*

**Assessment:** Background: Severely malnourished is the common risk factor for refeeding syndrome (RFS). This case presents the challenges in nutrition management of patient at high risk RFS with underlying retro virus (RVD) and pulmonary tuberculosis (PTB) positive. Client History: A 53 years old Malay male prisoner admitted due to fever and diagnosed with oral candidiasis, scabies with underlying RVD, PTB and Hepatitis C positive referred to start enteral feeding. Nutritional Assessment: Patient had body weight of 35kg (BMI: 13.7kg/m<sup>2</sup>) with weight loss 10% of body weight in 2 months. Presented with low total protein and electrolytes (K, Mg, PO<sub>4</sub>). He claimed having oral thrush and reduced intake for the past one month. Patient's lip was severely crusted with creamy white lesions. Reported 24-hour dietary intake was 165kcal/day (5kcal/kg/d) and 10g of protein (0.29g/kg/d).

**Diagnosis:** Predicted suboptimal nutrient intake related to risk of refeeding secondary to reintroduction of nutrition as evidenced by severely underweight (BMI:13.7kg/m<sup>2</sup>), impaired electrolytes (K, Mg, PO<sub>4</sub>), having oral thrush for past one month, febrile and cachectic appearance, 24-hour dietary recall (energy: 5kcal/kg, protein: 0.29g/kg).

**Intervention:** Prescription: 132kcal/day (12kcal/kg/day). Goal: Slow and gradual increment of energy provision was aimed to prevent RFS. The energy was increased gradually to achieve the requirement by 4-7 days. The provision of thiamine, vitamin B-complex, multivitamin and correction of electrolytes were suggested.

**Monitoring and Evaluation:** Electrolytes regressed due to planned regime was interrupted in view of uncooperative patient who kept requesting food due to hunger. Electrolyte correction, supplementation of thiamine and multivitamin were only prescribed on day 3. Patient achieved 33kcal/kg/d of energy requirement (day 7) without any sign and symptoms of RFS. Learning point: RFS is poorly recognized. Proactive in communicating with other health care professionals is important in order to provide advice and education in its prevention, recognition, and treatment.

## OR 02 - Laparoscopic Sleeve Gastrectomy in super obese patient. A case study on pre & post-operative nutritional management

*Maria Ulfah W1, Nur Amirah AA1, Norashikin R2*

- 1. International Islamic University Malaysia*
- 2. Hospital Sungai Buloh*

**Assessment:** A 38-years-old female who was in the waiting list for Bariatric surgery was admitted for elective laparoscopic sleeve gastrectomy on 8th February. She was referred to dietitian for Very Low Calorie Diet (VLCD) and optimization prior to surgery. The patients BMI was 52kgm<sup>2</sup> and was categorized as type IV obesity or super obese. Laboratory data revealed normal blood glucose, lipid profile and renal profile. In addition, patient had Obstructive Sleep Apnea (OSA), early stage right knee Osteoarthritis (OA) and diagnosed with spondylolisthesis of L4/L5. Few adjustments have been made upon provision of VLCD through ONS. Patient reported unable to tolerate well with regime provided

**Diagnosis:** Predicted inadequate energy intake related to decreased in ability to consume ONS regime prescribed as evidenced by energy intake of 113 kcal/day (36% of energy requirement) with complain of vomiting due to the smell and bold taste of the milk as compared to requirement 800kcal/day

**Intervention:** Nutritional intervention aimed to achieve 100% of energy and protein requirement since patient need to be optimized pre-operatively. Thus ONS changed to flavored milk; Diabetisol (cappuccino)

**Monitoring and Evaluation:** Follow up was continued to monitor adherence towards VLCD and feeding plan revised accordingly. Apart from dietary management; series of educational classes were given to help patient continue weight loss after surgery. Post-operative nutritional management focused on capacity of the new stomach pouch. VLCD regime resumed with smaller volume. Upon discharge, patient was allowed to eat normally following post-gastrectomy diet

OR 03 - Nutrition management for patient with extended beta total gastrectomy with Roux-en-Y esophago-jejunostomy with possible nutritional complications of post-gastrectomy.

*Aisyah Nabilah AL1, Noor Izati R1, Norashikin R2*

*1. UiTM*

*2. Department of Dietetic and Food Service, Hospital Sungai Buloh, Selangor*

**Assessment:** Mr. S, 70-year-old Indian male, referred for poorly differentiated adenocarcinoma of stomach. Patient had undergone operation for extended beta total gastrectomy with Roux-en-Y esophago-jejunostomy. Patients BMI was 23.9 kg/m<sup>2</sup> (underweight for elderly) with height and weight of 1.65m and 65kg. Haemoglobin and red blood cell levels were below normal range while CRP level was above normal range. Patient had 1 liter restriction of fluid (ROF) and was on intermittent pump feeding via nasojejenum. Upon review, patient was given Nutren Diabetes Liquid 40ml/H, 2x/day. The feeding was withheld due to blood transfusion, reflecting his low intake which was 242 kcal energy and 10.8 g protein.

**Diagnosis:** Inadequate enteral nutrition infusion related to schedule for infusion interrupted as evidenced by inadequate enteral nutrition volume (242 kcal) compared to estimated requirement (1950 kcal).

**Intervention:** To provide adequate protein and energy intake, thus, 30 kcal energy/kg current body weight/day and 1.3 g protein/kg current body weight/day were prescribed. Since patient had ROF, feeding was changed to Novasource Renal and increased accordingly.

**Monitoring and Evaluation:** Patient tolerated pump feeding well, and was later able to tolerate soft diet together with Novasource Renal as ONS, which planned to help achieve adequate requirement. Patient was also educated on post-gastrectomy diet prior to oral feeding to avoid dumping syndrome. Patient was then discharged with ONS to ensure adequacy of intake, T. Folic Acid 5 mg OD and IM Cyanocobalamin 1mg for every 3 months for first 2 years to prevent anemia, with further planning for adjuvant chemotherapy. Discussion: Post-gastrectomy may cause nutritional complications such as Dumping Syndrome, anemia, and weight loss. Dietary management is the key therapy to these complications. Therefore, proper education about dietary modification and supplementation are crucial. Learning Points: Compliance to post-gastrectomy dietary prescription is crucial to prevent possible complications that may arise.

## OR 04 - BABIES FIRST BITES: WEANING DIET FOR AN UNDERWEIGHT PAEDIATRIC PATIENT

*Gursharon Gill1, Charmaine Lavinia1*

*1. Division of Nutrition & Dietetics, School of Health Sciences, International Medical University, Kuala Lumpur*

**Assessment:** MHS, a 7-month old, male infant was referred to the outpatient diet clinic for poor weight gain. He was born full term with low-birth weight at 2.4kg, he had poor growth velocity starting from 4 months old. Current weight and height were 6.1kg (below the 5th percentile) and 67 cm (at the 25th percentile). He was fed with milk formula and solid food and had normal bowel output. Patients appetite decreased during sick days and he only drank milk and ate very little solids. Patient consumed 3 main meals, 5-6 bottle feeds/day (2 scoops in 90ml water), breast feeds on demand. His total energy intake was  $\approx 370$  kcal/day, meeting 60% of energy requirement (615kcal/d). MHSs mother had poor knowledge on the standard dilution of formula (Lactogen 2) and appropriate portion of rice for patient.

**Diagnosis:** Inadequate energy intake related to food and nutrition related knowledge deficit concerning appropriate diet (milk and solids) for age as evidenced by patients current intake meeting 60% of recommendation

**Intervention:** The goal of the intervention was to achieve adequate energy intake for optimum growth. Patient was prescribed with 615 kcal, 10g of protein and 610 mL of fluid. Patients mother was educated on correct standard dilution of formula, increased scoops of follow-up formula, methods to increase energy density of food. Pamphlet on calorie dense sample recipes was given and advised to continue with current meal and milk frequency.

**Monitoring and Evaluation:** MHS gained 0.4kg in 1-month (6.5kg), length: 69 cm-achieving growth velocity for his age. Energy intake met 100% of requirement. Mother had increased usage of oil from 1/4tsp to 2 tsp and increased rice portion from 1 tbsp to 2 tbsp for lunch and dinner. The patient will be monitored on growth, development and dietary intake.



## OR 05 - Self-Monitoring Mobile Dietary Application Promote Nutritional Therapy Adherence for Breast Cancer Surgical Patient: Case Series

*Ho Chiou Yi1, Norshariza Jamhuri1, Ban Zhen Hong2*

*1. Department of Dietetic and Food Service, National Cancer Institute, Putrajaya*

*2. Faculty of Engineering, Xiamen University Malaysia, Sepang, Selangor*

**Assessment:** Nutritional therapy adherence ensures adequate energy and protein intake to promote recovery post-operatively. Self-monitoring mobile dietary application, Intelligent Dietitian Support Apps, iDSA, was innovated to assist cancer patient to monitor own dietary intake at home in order to improve nutritional therapy adherence and enhance recovery. Dietitian entered estimated energy protein requirement into iDSA. Daily dietary intake was recorded by click-on pre-set food category and portion size accordingly. Total energy and protein intake was calculated automatically and displayed in achievement level with motivation phase. Patient monitored dietary intake and took correction action to optimise oral intake based on dietitian recommendation in food guide screen. Patients, A, B and C diagnosed with breast cancer and underwent right mastectomy with mean age 42.3 11.2 years old. Prior to admission, patients experienced one month weight loss 5.1%, 3.2% and 2.4% respectively.

**Diagnosis:** Unintentional weight loss related to inadequate oral intake as evidenced by weight loss history.

**Intervention:** High protein high calories diet was implemented. Upon discharged, patients installed iDSA and instructed to record and monitor own daily dietary intake.

**Monitoring and Evaluation:** Patients were followed up by dietitian after two weeks. Patients complied to iDSA and gained in weight 4%, 1.4% and 1.8%; achieved adequate energy intake of 94%, 90% and 97% and adequate protein intake of 97%, 92% and 95% from requirement respectively. Discussion: Self-monitoring mobile dietary application, iDSA, enable patient to monitor own dietary intake and then modify on dietary intake in order to achieve requirement. Digital dietetics and technology with self-monitoring mobile dietary application assisted cancer patients to self-monitor daily dietary intake, increase nutritional therapy adherence, optimise nutritional status and promote recovery after surgery. As conclusion, High compliance on smartphone application (iDSA) promotes nutritional therapy adherence, achieves adequate energy protein intake and speed up wound healing.

## OR 06 - Advocating Dietitians Role in Managing Patient at Risk of Refeeding Syndrome with End Stage Renal Failure (ESRF): A Case Study

*Nur Adilah M.B., Zulfitri Azuan, M.D.*

*Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, University Putra Malaysia*

**Assessment:** Background: Patient was 64 years old, Malay male with underlying ESRF on maintenance hemodialysis, Diabetes Mellitus, hypertension, and history of stroke 7 years ago. Following episodes of choking at home, patient was only tolerated fluid for the past 3 weeks and had been referred to dietitian to initiate Ryles tube feeding. Nutrition Assessment: Patient was identified as malnourished with BMI of 17.4kg/m<sup>2</sup> and SGA score C. Biochemical data showed deranged electrolytes, low albumin, total protein and haemoglobin. Patient had only been fed with one bottle of renal disease specific formula per day for the past 3 weeks. Thus, we identified patient as at-risks of refeeding syndrome.

**Diagnosis:** Malnutrition related to food- and nutrition-related knowledge deficit concerning amount of energy and protein needs as evidenced by BMI of 17.4kg/m<sup>2</sup>, SGA score C and estimated energy intake and protein intake achieved 21% and 28% from requirement.

**Intervention:** Protocol for managing patient at risk of refeeding was executed with energy provision commenced at 10 kcal/actual kg/d. Suggestion to supplement patient with Thiamine and Vitamin B complex was performed.

**Monitoring and Evaluation:** Monitoring & Evaluation: Dietitians regime prescription was followed and well tolerated by patient. Family members decided to discharge patients at own risk and stop doing haemodialysis. Latest biochemical data show increasing trend of renal profile however, other sign and symptoms for refeeding syndrome were not apparent. Discharge prescription was maintained at current regime, which provided 22 kcal/kg ideal body weight/d and 1.0 g protein/kg ideal body weight/d. Learning Points: Proactive role of dietitian to identify and alert the multidisciplinary team on at-risk patient for refeeding syndrome is crucial to prevent its fatal consequences. Daily monitoring is paramount, not only based on electrolyte reading but also from other sign and symptoms of refeeding syndrome signifying nutrition focused physical examination (NFPE) role in dietetic practices.

## OR 07 - A Case Study on the Impact of Virtual Dietetic Counseling on Weight Management among Obese Adolescents: A Triumph Story

*Aishah Zafirah A.A., Zalina A. Z. and Zulfitri 'Azuan M.D*

*Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, University Putra Malaysia.*

**Assessment:** Background: Virtual nutrition counseling is in high demands, in parallel with the rapid advancement in digital technology. Dietitians play pivotal role in keeping abreast with digital technology in delivering dietetic services to tech-savvy clients. Therefore, we exemplify the feasibility of a weight management in obese adolescents via virtual nutrition counseling. Client History: Clients were Malay siblings with 17-years old female (Ms. N) and 13-years old boy (Mr. M). They were obese and experiencing asthma since childhood. Assessment: Their BMI were more than 97th-centile (M=34kg/m and N=32.3kg/m). Diet history illustrated a predominantly large carbohydrate portion, excessive sweetened beverages and fatty foods intake, contributed to an average of 2600 kcal/day (53% carbohydrate, 8.5% protein and 38.4% fat) for both M & N. Both clients had sedentary life style.

**Diagnosis:** Excessive oral intake related to food- and nutrition-related knowledge deficit concerning appropriate oral food/beverage intake as evidence by 25-38% exceed from requirement with inappropriate macronutrients distribution.

**Intervention:** Nutrition Prescription: Energy requirement: 1660kcal (N) and 1930kcal (M). Virtual nutrition counseling was given via messenger and email (education module emphasized on energy balance, menu planning with portion control, smarter alternative to sweetened drinks/foods, high-fat food and the use of mobile health applications). Support from family member were emphasized to ensure their compliance.

**Monitoring and Evaluation:** Monitoring & Evaluation: N and Ms weight decreased significantly (14% and 25.2%, respectively) within 16 months with final BMI of 28.6kgm and 21.4kgm, respectively. Energy intake decreased to 1600 kcal/day, with more apparent healthier food choices. Family members provided relentless support especially in incorporating healthier cooking modification at home. They consistently exercise for 1-hour treadmill, plus circuit training every day. Learning Points: Remote intervention by virtual dietitian is feasible if specifically tailored to the clients needs. Dietitians are encouraged to embark in digital dietetics to provide positive reinforcement on healthy lifestyle changes.

## OR 08 - Case Study: The Application of the Nutrition Focused Physical Examination (NFPE) in the Outpatient Diet Clinic

*Charmaine Lavinia<sup>1</sup>, Nadine Alvina Kong Xiao Feng<sup>1</sup>*

### 1. IMU

**Assessment:** A 44 year old Indian female with Systemic Lupus Erythematous (SLE), Esophageal Stricture and Hypothyroidism has been seen by the dietitian in the outpatient multiple times for severe GI losses as a complication of the disease and its treatment. She is able to feed herself orally, although minimal and has refused the insertion of a PEG. Her weight fluctuates between 40-45kg. Currently, she has lost approximately 4 kg in total over one year. She has frequent vomiting and passes melanic stools. The NFPE stepwise guide for muscle, fat and intra-oral assessments were conducted. The results were poor muscle stores, xerostomia, edentulism and bleeding gums. She complained of swallowing difficulty. Her current dietary intake mainly consisted of liquids (fruit juices, oral nutritional supplement) and minimal solid food. Frequent meal intake and each meal time is up to 2 hours. Overall, she has poor nutritional status. Current medication is prednisolone.

**Diagnosis:** Inadequate energy intake related to difficulty in swallowing due to esophageal stricture and persistent vomiting as evidenced by her current intake of approximately 900kcal/ day.

**Intervention:** To improve nutritional status by providing adequate energy and protein intake with oral nutrition supplement and a modified texture diet. Was given a macronutrient prescription of 1400kcal/ day and 45g protein/day. She was given a polymeric formula in 100cc volumes every 3 hours (37% total energy) and to continue with the texture modified diets for her main meals.

**Monitoring and Evaluation:** The patients weight will be monitored and evaluated upon her follow up in 2 months. The intra-oral condition, muscle and fat stores should also be evaluated. Her medical treatment after her next visit needs to be reviewed as she will be meeting the doctor soon too. Lastly, her energy and protein intake should meet her requirement; bowel patterns and any signs of intolerance to feeds needs to be monitored.



**OR 09 - MEDICAL NUTRITION THERAPY IN HEART FAILURE PEADIATRIC**

*Nur Hidayah G1, Norul Huda I2*

- 1. Centre Of Nutrition and Dietetic, Faculty of Health Sciences, Universiti Teknologi MARA UiTM,*
- 2. Dept. of Dietetic and Food Service, Hospital Tengku Ampuan Rahimah, Selangor.*

**Assessment:** A 5 months old Malay boy was diagnosed with large perimembraneous ventricular septal defect (PMVSD) and moderate arterial septal defect (ASD) with pneumonia. Patient presented with severe respiratory distress required highest ventilator support before wean down to duo-positive airway pressure. Chest x-ray and echocardiography done and shown cardiomegaly and heart failure. He was further referred to paediatric cardiologist and aim for operation when body weight increase at satisfied range. Patient born term with birth weight 3.125kg. Admission weight and length were 5.1 kg and 59.5cm which both were below 3rd percentile. His ideal body weight was 7.7kg and length 66cm at 50th percentile based on weight-for-age and length-for-age of WHO growth charts. His biochemical data shown normal as well as vital sign. Patient was on Ryles tube feeding with fluid restricted 60ml/3 hourly providing 69kcal/kg/day and 1.6g/kg/day of protein. Anti-failure medications started which were intravenous Frusemide, Spironolactone and Captopril as well as Ceftriaxone to treat pneumonia infection. Energy and protein requirement were 153kcal/kg/day and 3.1g/kg/day based on catch-up growth formula (Peterson, 1984)

**Diagnosis:** Growth rate below expected related to physiological impetus for increase nutrients needs (heart failure) as evidenced by weight-for-age and length-for-age were

**Intervention:** Main goal was to provide adequate energy and protein in order to increase body weight before proceeds to cardiac assessment. Patient was given standard formula milk with adding glucose polymer and slowly increases the volume in each feed until reach 75ml/3 hourly which provide 130kcal/kg/day and 2.5g/kg/day.

**Monitoring and Evaluation:** Patient tolerate well with feeding regime planned and body weight increase gradually from 5.07kg until 5.43 kg. The prevalence of malnutrition, underweight and stunting is high in children with heart disease. Appropriate nutrition intervention is vital in order to improve clinical outcomes and quality of life overall.



### OR 10 - Study Protocol on the Development and Validation of a Sustainable Diet Index using Mobile Food Records

*Nur Fadzlina Zulkefli, Moy Foong Ming*

*Department of Social & Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur*

**Objective:** Adopting a sustainable diet is an alternative to address the pandemics of obesity, undernutrition and climate change that are threatening human health. Sustainable diet takes into account the health aspect as well as the environmental impact of diets. There is a scarcity of research on sustainable diet and lack validated tools for its measurement in Malaysia. This study aimed to develop and validate a Sustainable Diet Index (SDI) to assess if the populations diet is sustainable and environmental friendly.

**Methodology:** The study participants will be young adults from a local university. The participants are required to capture all foods and beverages consumed daily, before and after eating, using an Android smartphone. A Mobile Food Record (MFR) application will be used by participants to upload a 3-day food and beverage images. The images will be assessed for serves of fruits and vegetables, meat, poultry, fish, legumes, food packaging and food waste. The components in the SDI were developed from the available dietary guidelines on sustainable diet. Internal validity of the SDI will be performed using exploratory and confirmatory factor analyses. Internal consistency and reliability will be checked using Cronbach's Alpha and test-retest respectively. The weightage of each component of the SDI will be determined using Structural Equation Modelling. Relative validity will be assessed by determining the agreement between the MFR and the traditional 24- hour diet recall method.

**Results and Discussion:** The SDI is expected to act as a valid tool for the measurement of sustainable diet among young adults and hence provide the opportunity for further monitoring and intervention by researchers. This study will also prove a wider use of food images for dietary assessment.

The validated Sustainable Diet Index will provide a novel approach to evaluate sustainable diet among the Malaysian population.

## OR 11 - PERCEPTIONS ON THE BENEFITS, CHALLENGES, SUPPORT AND COMMITMENT TOWARDS THE ROLE OF DIETETICS CLINICAL INSTRUCTORS IN MALAYSIA

*Jamilah Binti Abd Jamil<sup>1</sup>, Winnie Chee Siew Swee<sup>1</sup>, Clara JG<sup>1</sup>, Yang WY<sup>1</sup>*

*1. Division of Nutrition and Dietetics, School of Health Sciences, International Medical University*

**Objective:** Implementation of clinical instructors (CIs) as key trainers during practicum for the dietetics programme in Malaysia was made mandatory in 2017. CIs roles are to guide, supervise, monitor and evaluate clinical progress of dietetics interns. Their roles are critical in shaping interns to be competent. This study aims to determine CIs perception on benefits, challenges, support and commitment towards the roles as dietetics clinical instructors.

**Methodology:** This is a cross-sectional study conducted among dietetics clinical instructors in Malaysia. Participants were recruited using total sampling. 53 participants were invited to participate in the study. The questionnaire consisted of five sections; demographic details, perceptions on benefits, challenges, support and commitment. Participants were required to rate their level of agreement to given statements on a 5-point Likert scale, from strongly disagree to strongly agree. Data was gathered using Survey Monkey platform. Scores were given for each perception domain. Statistical analysis used for the study were descriptive, Pearsons correlation coefficient and Spearmans rank correlation.

**Results and Discussion:** The respondents perceived good benefits by being a CI with median score 38.0 (6.0). They perceived to have minimal challenges, good support and commitment towards their roles with average of 19.004.30, 28.003.36 and 28.503.58 respectively. Keeping knowledge updated (93%) and feeling successful when students grasp the teaching (93%) were main benefits to serve as CIs. The main challenges are poor students attitude (62%) and limited time to teach vs services (62%). They feel supported by the university (80%). 95% of the respondent are willing to put in extra hours to teach dietetics interns. Support has shown to have a positive association with commitment (p value < 0.05).

Dietetics clinical instructors are generally committed to the role. With better support to the CIs, the commitment towards the role is better.

## OR 12 - Optimal Obesity Indices as a Screening Tool in Identifying Cardiovascular Risk Factors among Malay Adolescents in Kuala Nerus, Terengganu

*Sivanesan R1, Bee Suan W1*

### 1. UniSZA

**Objective:** This study aimed to identify the optimal obesity indices in identifying cardiovascular risk factors among Malay adolescents in Kuala Nerus, Terengganu.

**Methodology:** Subjects comprised 119 Malay adolescents aged 13-16 years old. Anthropometric measurements included height, weight, waist circumference (WC) and body fat percentage (%BF). Body mass index (BMI), waist-to-hip ratio (WHR), waist-to-height ratio (WHtR) and body adiposity index (BAI) were calculated. Total cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL) cholesterol, low density lipoprotein (LDL) cholesterol and fasting blood glucose (FBG) were determined in overnight fasting blood sample. Systolic blood pressure (SBP) and diastolic blood pressure (DBP) were also measured. Sociodemographic characteristics were obtained through parents self-report questionnaire. ROC curve was used to determine optimal cut-off for obesity indices.

**Results and Discussion:** Prevalence of obesity (BMI for age z-score > +2SD) and metabolic syndrome (MS) was 14.3% and 5%, respectively. WC [AUC: 0.982 (95% CI: 0.959, 0.988)] was shown to be the best predictor in determining cardiovascular risk factors among Malay adolescents with 82.0 cm as the cut-off followed by BMI [AUC: 0.981 (95% CI: 0.957, 0.988)] and %BF [AUC: 0.978 (95% CI: 0.951, 0.986)]. Besides, WC showed significant linear relationship with HDL ( $p < 0.01$ ), FBG ( $p < 0.05$ ) and SBP ( $p < 0.01$ ).

**Conclusion:** In conclusion, the prevalence of obesity was 14.3% and MS was 5% among Malay adolescents in Kuala Nerus with female subjects shows a higher prevalence of developing cardiovascular risk factors than male subjects. WC is the best indices in predicting cardiovascular risk factors compared to other indices. Interventions should be planned to increase awareness among adolescents to prevent their health conditions from becoming worse.



## OR 13 - Association between Gross Motor Function Classification System (GMFCS) and Anthropometric Status in Cerebral Palsy (CP) Children in Kelantan

*Juliana Shamsudin<sup>1\*</sup>, Shariza Abdul Razak<sup>1</sup>, Marina Abdul Manaf<sup>1</sup>, Sakinah Harith<sup>2</sup>*

*1. Nutrition and Dietetics Program, School of Health Sciences, Universiti Sains Malaysia*

*2. School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus*

**Objective:** To determine the association between gross motor function and anthropometric status in children with cerebral palsy (CP) residing in Kelantan, Malaysia.

**Methodology:** A cross-sectional study was conducted among 106 children (ages 4-12 years, mean age was 8.7 ± 2.4 years, 59.4% male and 40.6% female) with a diagnosis of cerebral palsy (CP) in Kelantan, Malaysia. The gross motor function of children was evaluated by applying the Gross Motor Function Classification System (GMFCS, level I to V). Anthropometric status was evaluated and classified according to World Health Organization growth charts through z-score. The association between GMFCS and anthropometric status was evaluated.

**Results and Discussion:** A total of 7.5%, 6.6%, 8.5%, 10.4% and 67.0% CP children classified in levels I to V respectively. Based on the weight for age z-score classification (WFA), 87.3% of CP children were severely underweight. In addition, 56.3% was severely stunted and 74.6% was severely wasted according to height for age (HFA) and BMI for age z-score classification (BMI/A). Malnutrition was significantly more common among CP children with severe motor impairments. A strong association was found between GMFCS and anthropometric status in children with CP for WFA, HFA and BMI/A z-score classification.

**Conclusion:** Malnutrition is a prevalent condition among paediatric patients with CP and associated with higher levels of gross motor dysfunction. Appropriate nutritional interventions especially focusing on dietary management have to be conducted for CP children for improvement of their nutritional status and quality of life (QOL).



### OR 14 - Qualitative expert interview: Exploring the steps in developing meal plan for athletes

*Norashikin M1, Nik Shanita S1, Abdul Hadi ARK2, Nor Samsiah S2, Mohd Izham M3*

- 1. Faculty of Health Sciences (Dietetics) Universiti Kebangsaan Malaysia*
- 2. Faculty of Information Sciences and Technology, Universiti Kebangsaan Malaysia.*
- 3. National Sport Institute*

**Objective:** Expert system had been build in nutrition field with the aim to plan a nutritious and appetizing menu based on nutrient needs of particular population, individualized preference, food availability and current medical health. Knowledge acquisition is an important process in the development of expert system to extract domain knowledge. Sports dietitians/nutritionists known as an expert in the nutrition-related for athletes overall performance and well-being. Therefore, understanding the process of meal planning from sports dietitians/nutritionist will help in the initial process of athletes meal plan expert system. Thus, this study aims to explore the steps in planning a meal for athletes practice by sports dietitians/nutritionist.

**Methodology:** A purposive sampling method was applied to recruit sports dietitians/nutritionists as an expert. Five semi-structured interviews were held. A recorded interview was transcribed to produce written text and entered in ATLAS.ti 8. The data were analyzed using thematic analysis to identify the important themes mention by experts. Multiple coding and validity checks were performed to further strengthen the methodology.

**Results and Discussion:** Following themes or steps were identified to plan a menu which are obtain and collect relevant data, analyzed and interpret the collected data, determine nutrition prescription, formulate goal and determine action, implement action and recommendation and monitoring. The research finding indicates, the steps that sports dietitians/nutritionists apply in meal planning is following the framework of Nutrition Care Process. The components in each step were based on the guideline for sports nutrition practice such as periodization plan, training time and their pre-, during and post-exercise meals.

**Conclusion:** High skill of critical thinking and evidence-based practice were applied in the development of meal planning for athletes. Thus, it is important to understand the steps that had been practiced by the sports dietitians/nutritionists to represent the knowledge of the expert.



OR 15 - Lifestyle intervention with mobile technology leading to weight loss in non-alcoholic fatty liver disease: A Randomised Controlled Trial

*Su Lin Lim<sup>1</sup>, Jolyn Johal<sup>1</sup>, Kai Wen Ong<sup>1</sup>, Chad Yixian Han<sup>1</sup>, Yiong Huak Chan<sup>2</sup>, Wai Mun Loo<sup>3</sup>*

*1. Dietetics Department, National University Hospital, Singapore*

*2. Biostatistics Unit, Yong Loo Lin School of Medicine, National University Health System, Singapore,*

*3. Division of Gastroenterology and Hepatology, Department of Medicine, National University Hospital, Singapore,*

**Objective:** Up to 30% of Asian adult population are diagnosed with Non-Alcoholic Fatty Liver Disease (NAFLD), with a higher prevalence in obese patients. Weight reduction is typically recommended but a challenge to achieve. We aim to evaluate the effect of a lifestyle intervention with mobile application on weight loss in NAFLD patients.

**Methodology:** This randomised controlled trial included 108 adults with NAFLD confirmed by steatosis on ultrasound and body mass index  $\geq 23$  kg/m<sup>2</sup>. They were randomly allocated to either control group of standard lifestyle intervention counselling or an intervention group utilising Nutritionist Buddy (nBuddy) mobile application in addition to standard counselling. Body weight, alanine aminotransferase (ALT), aspartate aminotransferase (AST), waist circumference, hip circumference and blood pressure were measured at baseline, 3 and 6-month. Between-group differences in the numerical and binary outcomes were compared using General Linear Model and Poisson Regression Model, respectively, adjusting for age, gender and ethnicity.

**Results and Discussion:** Using intention-to-treat analysis, the intervention group significantly improved anthropometric and biochemical outcomes at 6-month when compared to the control. There were greater reductions in weight (3.2 4.1 kg vs 0.5 2.9 kg; p

**Conclusion:** Lifestyle intervention enabled by mobile technology can be effective in improving anthropometric indices and liver enzymes in NAFLD patients. This treatment modality has the potential to be extended to a larger scale of population.

## OR 16 - Translating Nutrition Focused Physical Examination (NFPE) knowledge and skills acquired through virtual learning into practice

*Chen Seong Ting<sup>1</sup>, Winnie Chee Siew Swee<sup>1</sup>, Ng Kar Foo<sup>1</sup>, Riva Touger-Decker<sup>2</sup>, Rebecca Brody<sup>2</sup> & Jennifer Tomesko<sup>2</sup>*

- 1. Division of Nutrition & Dietetics (N&D), School of Health Sciences, International Medical University (IMU), Malaysia;*
- 2. Department of Clinical and Preventative Nutrition Sciences, Rutgers University, School of Health Professions (SHP), USA*

**Objective:** Virtual learning supports the growing demand of borderless education and continuing professional development. Nutrition focused physical examination (NFPE) is a standard of practice for dietitians to identify factors impacting ability to eat and drink, nutritional problems and malnutrition risk in patients. This study aimed to explore the feasibility of IMU final year dietetics students who were in clinical internship to acquire NFPE skills through virtual learning.

**Methodology:** Through a collaboration between IMU N&D and USA Rutgers University SHP, 14 IMU dietetics students were taught NFPE skills using computer-assisted instruction (CAI), an innovative web-based technology. In addition to their daily clinical training, these students volunteered to complete an 8-week online course on NFPE through a combination of synchronous live lectures, demonstrations and asynchronous lectures and skill videos by Rutgers SHP faculty using Zoom and Moodle platforms. Students participated in live case study discussions, online demonstration of skills on peers, pre- and post-knowledge tests, video recording of NFPE skills for instructor- and self-evaluation. After completion of the virtual learning, students practiced and recorded performing NFPE on patients during their internship.

**Results and Discussion:** In the 8-week internship, students identified 14 patients with cerebrovascular accident (CVA) (n=8), cancer (n=5), and chronic kidney disease (n=1) to perform a NFPE as part of their nutrition assessment. The NFPE skills most frequently performed included fat and muscle examination, extra- and intra-oral examination and selected cranial nerves screening. The students identified 6 patients with severe fat and muscle loss, 4 patients had chewing difficulty and 2 patients had swallowing difficulty. A patient with CVA failed to detect sensation on the right facial region during cranial nerve screening. As part of the nutrition care process, students recorded these findings in their case notes and recommended appropriate and tailored care plans.

**Conclusion:** This collaboration was a success and has extended to training the clinical dietitians and educators in Malaysia. Virtual learning can be successfully used to teach NFPE skills to students and enable the translation of knowledge into practice.





### OR 17 - Automated Reminder: An Effective Approach to Reduce No-Show Rate in Diet Clinic?

*Eliza WYS, Suriyanti M, Haslizawani AA, Norlizawarni J, Salha MN, Chin Weun C*

*Dietetics and Food Service Department, Hospital Sultan Ismail, Johor Bahru, Malaysia*

**Objective:** No-show or missed appointments are common occurrences in health care including dietetics outpatient clinics where it can negatively affect patients short and long term well-being due to missed opportunity to address patients nutrition issue in a timely manner. Therefore, a sequential clinical audit was conducted to identify the reasons of no-show and to propose along with implementation of remedial measure to reduce the no-show rate in diet clinic.

**Methodology:** The pre-remedial phase of the study was conducted from June to September 2017 at Hospital Sultan Ismail's diet clinic. Using system data, no-show cases were identified. No-showers or guardian of no showers were contacted to record the reason for no-show appointments. Descriptive analysis was used to analyze the results. Re-audit was conducted after implementation of remedial phase.

**Results and Discussion:** A no-show rate of 40.7% was found in the initial phase of the study. 102 patients were contacted (34%, n=102) to identify their reason of missed appointments to diet clinic. Paediatric patients aged 1 to 3 years contributed the highest percentage of no-show (49%, n=50). The major reasons identified for no-show are forgetting and remembered wrong appointment date (35.3%, n=36), followed by ill or admitted to ward (13.7%, n=14) and others (12.7%, n=13) such as personal issues and school examination. Automated reminder via broadcast with Short Message Service (MySMS) was implemented to target the major reason for no-show which resulted in a reduction of no-show rate to 22.2%.

**Conclusion:** No-show appointments are found to be prevalent. Remedial measure using Short Message Service (MySMS) is found to be effective in reducing no-show rate. Periodic audit is needed to ensure continuous effectiveness of remedial measure. However, further studies need to be conducted in weighing the cost effectiveness of this method for long term run.



## OR 18 - Students Acceptance of using Openlearning as a Platform in a Blended Learning Setting

*Mohd Ramadan AH1, Emmy Hainida KI1, Siti Sabariah B1, Norazmir MN1*

*1. Centre of Nutrition and Dietetics, UiTM*

**Objective:** The aim of this study is to assess students acceptance of blended learning specifically with the use of Openlearning (OL) as an online learning platform to complement traditional teaching.

**Methodology:** 137 students had participated in this study. OL was introduced to the Health Sciences students, who enrolled the Principles of Nutrition course. Students explored teaching materials, videos, activities and several assessments in OL and facilitated by facilitators for 14 weeks. A self-administered questionnaire was given via online to the participants to evaluate their attitudes and acceptance towards OL. Descriptive statistic was used to describe the demographic data and t-test was performed to report the level of acceptance.

**Results and Discussion:** Overall results showed students were very satisfied with blended learning using OpenLearning as a web-based tool. Students accepted OL as it is easy to use and convenience. They also agreed that the usage of OL in teaching and learning will improve their academic performance.

**Conclusion:** In conclusion, the Health Sciences students accepted the use of Openlearning as a platform in blended learning setting.

## OR 19 - Osteoporosis and sarcopenia among post-menopausal women and men aged 50 years and older in Klang Valley, Malaysia

1Nor Aini J, 2Chin KY, 2Chan CY, 2Shaanthana S, 2Ima-Nirwana S, 2Norliza M, 2Fairus A, 2Mohd Rizal AM, 3Ng PY, 2Norazah AA, 2Norazlina

1. Dietetics Program, Faculty of Health Sciences, Universiti Kebangsaan Malaysia,
2. Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Malaysia
3. Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Malaysia

**Objective:** Age-related loss of muscle (sarcopenia) and bone (osteoporosis) increases the risk of falls and fractures and consequently posing a major clinical and public health burden. This study aimed to evaluate the prevalence and association between osteoporosis and sarcopenia among post-menopausal women and men aged 50 years and above in Kuala Lumpur, Malaysia.

**Methodology:** A cross-sectional study was carried out in Hospital Canselor Tuanku Mukhriz (PPUKM), Malaysia. Data collected include socio demographic profile, anthropometric status, dairy intake and physical activity level. Bone mineral density and appendicular lean mass (ALM/height<sup>2</sup>) were measured using dual energy X-ray absorptiometry (DXA) densitometer (Hologic) at lumbar spine, left hip and whole body. Binary logistic regression analysis was performed to explore the association between sarcopenia and osteoporosis.

**Results and Discussion:** A total of 291 participants (146 women, 145 men) took part in this study. Men were older (mean age men vs women: 62.0 years vs 60.1 years), heavier (69.1 kg vs 59.4 kg) and taller (166.6 cm vs 153.8 cm), but had lower body fat percentage (29.5% vs 40.7%) and lower dairy intakes (77.9% vs 52.7%) than women. Nearly half of the participants were physically inactive (47.9% in women and 42.1% in men). The prevalence of osteopenia (women: 52.1% vs men: 37.2%) and osteoporosis (24.7% vs 7.6%) was higher in women than men. One-third of the participants were sarcopenic (36.6% in women and 36.3% in men) with no difference between sexes ( $p > 0.05$ ). Compared to those who has normal bone health status, osteopenia/osteoporosis individuals have 5 times higher odds (OR: 4.96, 95% CI= 2.7 to 9.0) to be sarcopenic.

**Conclusion:** Sarcopenia is associated with osteopenia and osteoporosis. Preventive measures to combat both conditions are warranted.