

**The Scientific and Research Steering Group are delighted to welcome you the 4<sup>th</sup> annual INDI Fresenius-Kabi Research Symposium.**

This year we had a record breaking number of abstracts submitted, reflecting the increasing desire for dietitians to engage in research. The topic areas are broad, with research being conducted in acute and community settings, in adult and paediatric populations, and across a variety of specialities. Due to the high volume of abstracts received, we unfortunately do not have the time to allow everyone to present orally. The highest scoring abstracts will be presented in a “Research-in-Three” session, but please do take the time to review the other posters on display throughout the evening, particularly those awarded a “Highly Commended” badge.

We are delighted to welcome biochemist, chef, and food writer Anthony Warner as our Keynote speaker tonight. Anthony is the creator of the hugely popular Angry Chef blog and has authored two books “The Angry Chef: Bad science and the Truth about Healthy Eating” and “The Truth About Fat”. We look forward to hearing Anthony discuss effective research communication and how dietitians can get their message across amidst a sea of nutribabble.

This year we have introduced the Research Impacting Practice Award to acknowledge dietitians working in practice who are leading research. We had a number of excellent applications and have invited the top nominees to present their work tonight. We will also hear from the nominees for the prestigious Research Dietitian of the Year award and will announce the winner at the end of the night.

This evening would not be possible without the support of Fresenius-Kabi and we are very grateful to them for their ongoing support of dietetic research and education.

We hope you enjoy the evening

The Scientific and Research Steering Group



Suzanne Doyle



Aileen Kennedy



Yvonne Hickey



Laura Keaskin



Aoibheann  
McMorrow



Eileen O'Brien



Caoileann Murphy



Emma Clifford



Fiona Byrne



Suzanne Seery

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## Research in Three Abstracts

**Name of Presenting Author: Laura Hayden**

**Title: Pilot audit of introduction of milled linseed on a community response rehabilitation ward.**

**Introduction/Background:** Linseed / flaxseed is a naturally occurring seed. The use of milled linseed added to food has been shown to reduce symptoms of constipation i.e. straining, presence of hard stool, and pain with bowel movements. An audit of St. Mary's hospital and PPCNU menus was performed in 2016 and found that patients on a regular consistency diet were meeting a maximum of 30% of their recommended daily fibre intake. This showed a significant deficit that needed to be addressed. Milled linseed added to breakfast porridge was proposed as an achievable and tolerable way to introduce more fibre to all patients / residents dietary intake. A six week MSc student project was completed in August 2017 where 10-20g of milled linseed was physically added to 38 individual resident's breakfast porridge at ward level in a 100 bedded residential setting. This study showed that milled linseed appeared to lead to increased bowel regularity, increased bowel consistency and reduced laxative use but that adding at ward level was too labour intensive, and the study recommended adding at kitchen level.

**Methods:** Exclusion criteria: Patients who had had recent bowel surgery and may be on low residue/fibre diets were not permitted to take part. Inclusion criteria: Patients admitted between 9<sup>th</sup> July- 24<sup>th</sup> August 2018 who consented to and consumed linseed porridge for at least 6weeks were included. N=23 patients were included in the trial. 30% of the patients were present for the entirety of the trial from 9<sup>th</sup> July- 19<sup>th</sup> October 2018 (14weeks). We measured laxative dosage, bowel frequency and consistency on admission and again at time of discharge or 12 weeks post commencement.

**Results:** Post trial results show that there had been a 51% reduction in the use of laxatives within this cohort. 56% of patients are now having daily type 3 or 4 bowel motions showing reduced signs of constipation. 100% patients are now moving their bowels within 1-3days which was improved from 87% pre-trial. There has been a 40% reduction in patients on more than one laxative highlighting the improvement in appropriate prescribing and monitoring of laxatives. 13% of patients independently commented that they had reduced rectal straining with six weeks of commencing the trial. There has been a projected annual saving of €2662.22 or 50% reduction in the cost of laxatives within this cohort of 23 patients.

**Discussion/Conclusion:** The above trial supports the use of milled linseed to improve the fibre provision from the hospital menu in order to reduce constipation symptoms and reliance on laxatives. This has in turn reduced the caseload of the ward nurses usually spent on measuring laxatives, managing irregular bowel motions/faecal incontinence and providing PRN laxative enemas. Allowing patients to have regular bowel motions using a naturally occurring food instead of a prescribed medication should aim to ensure improved dignity and respect. Reduction in the use of laxatives not only reduces cost but also negative laxative related side effects i.e. faecal incontinence and impaired skin integrity or increased pressure ulcer development.

**Name of Presenting Author: Katie Moore**

**Title: Effect of B-vitamin Supplementation On Cognitive Performance And Brain Function In The BrainHOP Trial.**

**AUTHORS:** K. Moore<sup>a</sup>, C.F. Hughes<sup>a</sup>, K. Porter<sup>a</sup>, L.C. Doherty<sup>a</sup>, P. Gaur<sup>b</sup>, F. Tracey<sup>c</sup>, M. O’Kane<sup>d</sup>, H. Jarrett<sup>a</sup>, M. Ward<sup>a</sup>, L. Hoey<sup>a</sup>, J.J. Strain<sup>a</sup>, K. Pentieva<sup>a</sup>, F. Maestú, N<sup>e</sup>. S. Martínez<sup>e</sup>, G. Prasad<sup>b</sup>, H. McNulty<sup>a</sup>

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**Introduction:** Globally populations are ageing and neuropsychiatric disorders are reported as a leading cause of poor health in older people<sup>(1)</sup>. Folate and the metabolically related B-vitamins may have roles in delaying cognitive dysfunction in ageing, but the evidence is inconsistent<sup>(2)</sup>. The aim of this study was to investigate the effect of supplementation with relevant B-vitamins, on cognitive health and brain function in older adults.

**Methods:** The B-vitamins and Brain Health in Older People (BrainHOP) randomised controlled trial was conducted in adults aged 70 years and older. Participants were randomised to receive a supplement containing folic acid (400µg), vitamin B12 (10µg), vitamin B6 (10mg) and riboflavin (10mg) or placebo daily. Cognitive function was assessed before and after the 2-year intervention using the Repeatable Battery of the Assessment of Neuropsychological Status and brain function was assessed at the end of intervention using Magnetoencephalography (MEG) in a subset of participants (n=25).

**Results:** Of the 328 participants initially recruited, 249 (74%) participants completed the trial. Results showed that B-vitamin intervention had no significant effect on global cognitive function. However, when specific domains within global cognition were examined separately, B-vitamin intervention was found to protect against visuospatial cognitive decline ( $P=0.001$ ). Preliminary results from the MEG analysis suggested improved neuronal functioning as a result of intervention with B-vitamins, as shown by lower power in the Delta [1-4Hz] ( $P=0.021$ ) and Theta [4-8Hz] ( $P=0.011$ ) bands compared to the placebo group, following interruption within the working memory task.

**Conclusion:** The results suggest that optimising B-vitamin status in older people may be beneficial for brain health and identify the potential use of MEG as a novel technology in nutrition and ageing research.

1. Prince M, Wu F, Guo Y *et al.* (2015) *The Lancet* **385**, 549-562

2. Smith A.D and Refsum H. (2016) *Annual Review of Nutrition* **36**, 211-239

**Name of Presenting Author: Gillian Tracey**

**Title: A comparison of nutritional and clinical outcomes in patients with a prophylactic feeding tube versus a reactive tube: results of a retrospective audit. By G.Tracey, St. Luke's Radiation Oncology Network, Rathgar, Dublin 6.**

**Introduction:** In 2008 an INDI guidance document for prophylactic gastrostomy feeding tubes for head and neck Cancer (HNC) patients was developed by a working group of oncology dietitians. Percutaneous endoscopic gastrostomy (PEG) and radiologically inserted gastrostomy (RIG) are placed both prophylactically and reactively in patients receiving treatment at St. Luke's Hospital. The aim of this audit was to measure adherence to the INDI guidance document among patients having treatment at St. Luke's Hospital, to compare nutritional and clinical outcomes in patients with prophylactic feeding tubes versus those with reactive tubes, and to compare complications in these tubes.

**Methods:** An audit was conducted retrospectively on gastrostomy patients seen by the researching dietitian from January to December 2017. Data was collected on diagnosis, treatment, admissions, hospital where tube was inserted, tube type, whether prophylactic/reactive, dysphagia, percentage weight loss, and complications. Descriptive statistics were compiled using Microsoft excel.

**Results:** 34 patients met the criteria for a prophylactic gastrostomy feeding tube. However only 24 received one. Table 1. Compares outcomes and complications in the prophylactic tube group versus the reactive group.

	<b>Prophylactic (n=24)</b>	<b>Reactive (n=10)</b>
<b>≥ 10% wt loss</b>	42% (10)	70% (7)
<b>Admission directly related to nutritional issues</b>	25% (6)	80% (8)
<b>Complications directly impacting on feeding</b>	42% (10)	10% (1)

33% of PEG patients experienced complications with their tube that impacted feeding versus 46% of RIG patients. 3 of the prophylactic tube patients never required their tube for feeding.

**Conclusion:** All patients met the criteria for a prophylactic feeding tube as per the INDI guidance however almost 1/3 of the group received a reactive tube instead. The prophylactic group had significantly less weight loss and fewer nutrition related hospital admissions. The patients who had a PEG tube placed experienced less complications than those who had a RIG.

## Research in Practice Nominees

### Aishling Sheils

#### Cavan General Hospital, Co.Cavan

Aishling graduated in 2004 from DIT/TCD and worked predominantly in paediatrics since then in both Our Lady's Children's Hospital Crumlin and Temple Street Children's University Hospital from 2005-2018. In September of this year Aishling took a position in Cavan General Hospital. She has been involved in the INDI paediatrics course since 2010, and was previously the paediatric representative to the CORU committee on ethics.



Research publications include:

Gill I, **Sheils A**, Reade E et al. (2017) Narcolepsy in children and teenagers in Ireland *British Paediatric Neurology Association*

Teoh CW, **Sheils A**, Bates M et al. (2013) Vitamin D Status of Children Undergoing Haemodialysis in Ireland: Effects of Supplementation *International Paediatric Nephrology Association*

Quinlan C, Bates M, **Sheils A** et al. (2012) Chronic Haemodialysis in Children Weighing Less Than 10kg *Pediatric Nephrology*

**Sheils A**, Savage A, O'Malley G (2009) Preliminary results of the Streetwise Healthy Lifestyles Programme in overweight and obese children *European Childhood Obesity group*

## Project outline:

The Effect of Sodium Oxybate on the Anthropometry of Irish Teenagers with Narcolepsy

### INTRODUCTION

Narcolepsy is a neurological disorder characterised by excessive daytime sleepiness, sleep attacks, cataplexy, disturbed nocturnal sleep and obesity.<sup>1</sup> Narcolepsy with cataplexy is caused by a deficiency in hypocretin-1 peptides most likely through autoimmune destruction of hypocretin cells in the hypothalamus.<sup>2,3</sup> Hypocretin is also involved in feeding behaviour and energy balance.<sup>4</sup> Narcolepsy is commoner in children and teenagers who received the Pandemrix™ vaccination. Increasing weight is a common feature (>25%) in childhood narcolepsy. Our unit is the national tertiary referral centre for patients with suspected narcolepsy<sup>5,6,7</sup>. Sodium oxybate (Xyrem™) is a second-line treatment for narcolepsy with beneficial effects on sleepiness, cataplexy and weight.

### OBJECTIVE

To examine the effect of sodium oxybate on the anthropometry of children diagnosed with narcolepsy in Temple St, Children's University Hospital, with symptom onset from April 2009 to November 2016.

### METHODS

Data was collected by retrospective chart review from patients attending Neurology clinic. Patients for whom sodium oxybate was prescribed were selected. Data collected included demographic and anthropometric information, symptoms, vaccination timing, investigations, and response to specific treatment.

### RESULTS

A total of 67 patients attended the Neurology clinic of whom 30 girls (45%) and 37 boys (55%). Ninety-four percent (64/67) received the Pandemrix™ vaccination. Sodium oxybate was prescribed in 24/67 (36%) of patients. The average time from diagnosis to starting sodium oxybate was (2.7 years ± 2 years), with a range of one month to 9.4 years after diagnosis. Body mass index SDS score at the commencement of sodium oxybate is 1.3 (IQR 1.5) and fell to a BMI SDS of .73 (IQR 2.08) after 6 months, increasing at 1 year to a BMI SDS of 2.4 (IQR 3.3) but fell again to a BMI SDS of .94 (IQR 2.9) at 2 years and .63 after 3 years.

### CONCLUSIONS

Prescription of sodium oxybate was associated with reduction in weight and was well tolerated by most patients. As a result of this work children requiring this drug are now flagged for dietetic review prior to prescribing. Physical activity is encouraged and weight is monitored at 3 monthly reviews. Aishling regularly meets children and their families with the medical social worker and psychologist to help address any issues arising, thus helping to ensure good nutrition during their busy and challenging lives.

REFERENCES 1. Overeem S, J Clin Neurophysiol 2001; 18:78-105. 2. Dauvilliers Y, Brain, 2013; 136: 2486-2496. 3. Poli F, Vaccine, 2013; 31: 997-1007. 4. Sakurai T, Trends Pharmacol Sci, 2011; 32: 451-462. 5. Kotagal S, Sleep Med 2004; 5: 117-150. 6. Aran A, Sleep 2010; 33:1457-1464. 7. Peraita-Adrados R, Sleep Med 2011; 12: 24-27.

## **Dorothy Loane**

### **Midlands Community**

Dorothy Loane qualified as a dietitian from Kevin Street DIT/Trinity College Dublin in 2002. She worked in the acute hospital setting in St. Lukes Hospital Rathgar, University College Hospital Galway and St. Vincents Hospital Dublin, before moving to the Midlands community in 2007. Dorothy has a wide range of experience working with both adults and paediatrics in primary care, disabilities and residential care setting for older persons. Dorothy has worked as Clinical Specialist Community Dietitian for Older Persons in CHO 8, Midlands Area, since November 2016.



Her remit includes overseeing the nutrition input into the 9 HSE Residential Care Sites for Older Persons as well as taking a lead role in malnutrition screening in primary care and enteral tube feeding across all community care settings. Dorothy has been the INDI representative on the National Clinical Programme for Older Persons (NCPOP) since January 2017. In this capacity, she has lead out on the development of a Nutrition and Frailty module for inclusion in the National Frailty Education Programme, with a cross divisional subgroup of dietitians.

## **Project Outline:**

### **Why was the Project Undertaken?**

Staff in HSE Residential Care Sites for Older Persons (RCS) in CHO 8 Midlands region reported anecdotal evidence of residents' rising levels of overweight and obesity. This project was undertaken to identify current Body Mass Index of all residents, to investigate body mass trends after admission in a sub-cohort of residents who were overweight and obese (BMI  $\geq$  25kg/m<sup>2</sup>) and to qualitatively investigate the change in residents' diet and lifestyle patterns from pre to post admission to this care setting.

### **Who was involved in the Project?**

Directors of Nursing, Community Nutrition & Dietetic Service and UCD (Cillian O'Shea & Niamh O'Shaughnessy, now qualified dietitians, conducted the research, supervised by Caoileann Murphy, Post doctoral Research Fellow & Dorothy Loane)

### **What were the findings?**

#### 1. Quantitative

- 6% underweight; 35% healthy weight; 35% overweight ; 24% obese (243/335 residents).
- 78% gained further weight in first year of admission (130/243 residents).

#### 2. Qualitative

- Increased frequency of eating; low mood and increased appetite following smoking cessation some of the changes reported by residents
- Fear of HIQA, increased accessibility to food; confectionary provided by family and poor understanding of healthy eating reported by staff

### **What was the impact of the project?**

Implementation of recommendations in all RCS via local nutrition team meetings commenced 3<sup>rd</sup> quarter 2018 (restructuring and review of content of standard menu). Further plans include resident, family and staff training and updating of regional policies. Feedback received via nutrition team and residents' forums.

### **How has the work been disseminated to the wider audience?**

- Poster presentations at Irish Gerontological Society Annual Conference, September 2018. Won President's Prize.
- Novel study findings. Only study of its kind in Ireland and limited but supporting evidence worldwide. Project highlights need to investigate if similar weight gain trends present in other CHOs. This will have important implications for nutrition and hydration policies to ensure that the risk of undernutrition is minimised, whilst also ensuring that an obesogenic environment is not created. Liaising with NCPOP re endorsement for this replication.
- Disseminated via community dietitian managers, education steering group and plan to publish in HSE and INDI publications.
- Submitted to Midlands Louth Meath CHO making a difference award.

## **Michelle Fanning**

### **St James Hospital, Dublin 8**

Michelle graduated from TCD/DIT in December 2003 with a BSc in Human Nutrition and Dietetics. She is working in the speciality of upper gastrointestinal surgery at St James's Hospital since 2011 and was appointed Clinical Specialist Dietitian in Gastrointestinal Surgery in September 2017.



## Project Outline

### Project Title

A joint dietitian and surgeon clinic dedicated to investigating & managing symptoms of malabsorption after oesophageal and gastric cancer surgery.

### Project Abstract

In a prospective study, undertaken in 2013 to 2015, we reported that malnutrition and malabsorption are prevalent after oesophagectomy and gastrectomy, and that targetable gut and pancreatic-related factors may represent an opportunity to impact on gastrointestinal recovery and nutritional well-being (Heneghan *et al.* 2015). The non-specific nature of symptoms of malabsorption demanded a systematic approach to unravel the associated clinical causes and treatment options. To this end, in the summer months of 2014, I drove a project to establish a joint dietitian and surgeon clinic dedicated to investigating & managing symptoms of malabsorption after oesophageal and gastric cancer surgery. Supported by Professor Reynolds and Professor Ravi, Consultant Surgeons, I took lead to consult with Departments of Clinical Nutrition, Clinical Microbiology, Biochemistry, GI Function, Immunology and Nuclear Medicine to develop an investigation protocol and outpatient clinic infrastructure, where all possible causes of malabsorption are considered and investigated together on referral.

The *Malabsorption Clinic* is now four years in existence and runs fortnightly supporting the main *Oesophageal and Gastric Cancer Clinic* in St James's Hospital, facilitating the longitudinal study of malabsorption. The focused high-volume exposure to complex GI symptom profiles provides the opportunity to evaluate the effects of our targeted interventions and serves to guide our evolving clinical practice and treatment algorithms. Clinically relevant research has been published in the following:

### References

Fanning M, Brennan M, Granahan A, Doyle SL, Donohoe C, Lawlor P, Ravi N, Reynolds JV. Small Intestinal Bacterial Overgrowth in Patients post Major Upper Gastrointestinal Cancer Surgery. *Diseases of the Oesophagus* 2017; 30(5):1-7.

Fanning M, Donohoe C, Cournane S, Cooke J, Sheehy N, Ravi N, Reynolds JV. Bile acid malabsorption post oesophagectomy and gastrectomy *British Journal of Surgery* 2016; 103(S7): 5-62.

Heneghan H, Zaborowski A, Fanning M, McHugh A, Doyle SL, Moore J, Ravi N, Reynolds JV. Prospective Study of Malabsorption and Malnutrition after Esophageal and Gastric Cancer Surgery *Annals of Surgery* 2015; 262:803-808.

## Research Dietitian of the Year Nominees

### Dr Ann-Marie Brennan

#### Cork University Maternity Hospital, Co. Cork

Dr. Ann-Marie Brennan is a Clinical Specialist Neonatal Dietitian at Cork University Maternity Hospital with nearly 20 years post-graduate experience. She is responsible for the development, management and evaluation of the clinical nutrition & dietetic service to the neonatal unit.

Ann-Marie graduated from Trinity College Dublin / Dublin Institute of Technology with an Honours degree in Human Nutrition & Dietetics in 2000. She completed her PhD thesis entitled *Nutrition, Growth and Body Composition in Preterm Infants* at University College Cork, in 2013. She has presented her award winning research findings at national and international conferences including ESPGHAN. She is a member of the National Clinical Programme for Paediatrics and Neonatology Parenteral Nutrition Expert Group, the Neonatal Dietitians of Ireland Group and the Irish Nutrition and Dietetic Institute.



Ann-Marie is currently a co-investigator on PiNPoiNT, Personalised Nutrition for the Preterm Infant, which is a Science Foundation Ireland-funded study at the INFANT Perinatal Research Centre, Cork, that will devise and implement digital systems for real-time monitoring of nutritional support in preterm infants.

## Mary Finn

### Tallaght University Hospital, Dublin 24

Mary qualified with a BSc in Human Nutrition and Dietetics from Trinity College Dublin in 2002 and has been working as a clinical dietitian since then. She has been working in diabetes in Tallaght Hospital since 2009. Here she delivers and undergoes ongoing audit of the Berger Structured Education Programme for individuals with type 1 diabetes and was recently part of the RCPI National type 1 diabetes Guideline Committee which developed national standards for type 1 diabetes.

Mary has always had a keen interest in sports nutrition and completed an International Olympic Council diploma in sports nutrition in 2011 and is also ISAK (International Society for the Advancement of Kinanthropometry) Level 1

trained. She has been a Professional member of the Irish Institute of Sport since 2012 and has worked in her own time with athletes from Swim Ireland and Paralympics Ireland.



This interest has led her to want to help and support those with Type 1 Diabetes undertaking exercise. She has delivered various Exercise and Type 1 Diabetes workshops and has organised the participation of the Type 1 Diabetes patients in a number of race events (5k and 10k) throughout Dublin. Mary was awarded 2 Meath Foundation Tallaght Hospital grants which has allowed her to undertake research in the area of type 1 diabetes and exercise since 2016 to present. She was awarded her research Masters from Trinity College in Dec 2018 for her thesis entitled 'Physical activity level and barriers to physical activity among an adult type 1 diabetes population'. Mary will present us with her research today.

## **Dr Sharleen O'Reilly**

### **University College Dublin, Co. Dublin**

Dr Sharleen O'Reilly is an Assistant Professor at University College Dublin in the School of Agriculture and Food Science. She holds Registered Dietitian status in Ireland and Advanced Accredited Practising Dietitian status (AdvAPD) in Australia. Dr O'Reilly's research interests lie in research translation and how chronic disease prevention and lifestyle management can be better implemented in the real world. She has attracted over €1.5M in research funding, had 20 peer reviewed research articles and 35 conference presentations over the past 3 years.

Sharleen's research led her to holding two prestigious Fellowships during her 12 years in Australia - the National Health and Medical Research Council's Translating Research into Practice Fellowship and an Australia Awards-Endeavour Executive Fellowship. Sharleen holds an Adjunct Professor position at the Public Health Foundation of India and Adjunct Senior Clinical Lecturer at Deakin University. Sharleen is an Editorial Board member as well as Clinical Trials Editor for 'Nutrition and Dietetics' and is an Associate Editor for 'Diabetic Medicine' journals.



# Poster Abstracts

POSTER	PRESENTER	INSTITUTE	TITLE
<b>PAEDIATRICS</b>			
1	Donna Daly	University Hospital Limerick	Investigation of exocrine pancreatic function amongst paediatric Cystic Fibrosis patients taking Ivacaftor at UHL.
2	Fiona Liu	University College Dublin	Irish school children's knowledge of the origins of their breakfast foods
3	Niamh Landy	Temple Street, Children's University Hospital,	Dietary phosphate restriction in patients with chronic kidney disease receiving haemodialysis in Temple Street Children's University Hospital
4	Katie O'Sullivan	Dublin Institute of Technology	Survey of Irish Dietitians' Attitudes and Experiences of Blended Tube Feeding in Paediatrics
5	Sorcha Galvin	Dublin Institute of Technology/Our Lady's Children's Hospital Crumlin	An examination into the outcomes of paediatric eosinophilic oesophagitis in a national cohort
6	Diewerke de Zwarte	Dublin Institute of Technology/HSE Dublin Mid Leinster	Randomised study demonstrates sustained benefits of a pre-school intervention designed to improve nutrition and physical activity practices
7	Carol Stephens	University College Dublin	Improving UCD Volunteer Overseas Dietary Intervention for Children with Cerebral Palsy at Kisiizi Hospital, Uganda
8	Aishling Sheils	Temple Street, Children's University Hospital,	The effect of sodium oxybate on the anthropometry of Irish teenagers with narcolepsy
9	Grace Bennett	Dublin Institute of Technology/University College Dublin	Examining Intakes of Nutrients Associated with Cognition in Young Irish Twins

10	Helena Scully	University College Dublin	Trends in dairy consumption and micronutrient intakes in Irish twin children.
<b>MATERNAL AND INFANT HEALTH</b>			
11	Emma Conlon	Dublin Institute of Technology	The Effect of Maternal Fat Intake on Breastmilk Composition, and the Effect that this has on the Growth Trajectory of Preterm Infants.
12	Karolina Pawlak	Dublin Institute of Technology	A qualitative exploration of the attitudes and experiences of Polish breastfeeding mothers in Ireland
13	Eileen O'Brien	National Maternity Hospital	Tús Maith – A Healthy Start. An audit of staff awareness a diet and lifestyle antenatal class for women with a high BMI
14	Eileen O'Brien	National Maternity Hospital	Tús Maith – A Healthy Start. An evaluation of a diet and lifestyle antenatal class for women with a high BMI
15	Meabh Walsh	Dublin Institute of Technology	Avoiding maternal vitamin D deficiency may lower blood glucose in pregnancy.
16	Sharleen O'Reilly	University College Dublin	Can a postpartum diabetes prevention program improve dietary quality in women with previous gestational diabetes?
17	Michelle Brady	University College Dublin	Blood pressure in pregnancy- a stress test for future hypertension?
18	Amanda Courtney	University College Dublin	The DASH dietary pattern and blood pressure in pregnancy
19	Sarah Louise Killeen	National Maternity Hospital	Maternal nutrition during pregnancy, a protocol for the development of a core outcome set
20	Roberta	National Maternity	PRIME (PReterm Infants need Milk Early), A Quality

	McCarthy	Hospital	Improvement Initiative in a Tertiary Neonatal Unit
21	Emma Clifford	South Infirmary Victoria University Hospital, Cork	Dietary behaviours and weight management: A thematic analysis of overweight and obese pregnant women's perceptions.
22	Siobhan Pyper	Regional Hospital Mullingar	The association between sensitisation to house dust mite and food allergy in infants with moderate to severe atopic dermatitis
23	Ann-Marie Brennan	Cork University Maternity Hospital	BabyGrow: Translating Research into Improved Nutritional Care for Preterm Infants. A Dietitian-led, Multi-disciplinary Project Delivering Data Driven Innovations in Parenteral Nutrition
24	Laura Harrington	National Maternity Hospital	Dietitian-delivered group education improves nutrition knowledge for women with gestational diabetes at a large maternity centre
<b>SERVICE PROVISION AND QUALITY IMPROVEMENT</b>			
25	Laura Harrington	National Maternity Hospital	The implementation of a standardised nutrition assessment (Nutrition Care Process) into patient records in an Irish maternity hospital
26	Emma Grant	St Lukes, Kilkenny	Improving nutritional screening rates in an acute hospital setting
27	Niamh Flanagan	St James's Hospital	Change in practice to Clinical Nutrition service provision to Maxillo-Facial Trauma patients
28	Emma Fox	Tallaght University Hospital	Determine whether having a specified weigh day improves compliance with patient weighing and MUST screening guidelines on admission and one week post-admission in an

			acute hospital
29	Michelle Fitzmaurice	St James's Hospital	An Audit of the Clinical Nutrition Service to Patients with Head & Neck Cancer in an Acute Teaching Hospital
30	Kay Drea	University College Dublin	Effect of a structured education programme in children and adolescents living with type 1 diabetes.
31	Megan Rayner	University College Dublin	Barriers and Enablers to Structured Education and Support Services Uptake for People with Type 2 Diabetes
32	Patrice McNamara	St James's Hospital	A dietetic initiative to reduce DNA rates and optimise dietetic time for the Irritable Bowel Syndrome service at an acute teaching hospital
33	Emily Burke	Dublin Institute of Technology/Naas General Hospital	Successful implementation of Step 5 of MUST - Identifying the challenges and improving delivery of nutritional care through a Quality Improvement Plan.
34	Caoimhe Hughes	St James's Hospital	Changes over time: Review of Clinical Nutrition input on a discharge planning ward in the first 10 months of operation in an acute teaching hospital
35	Michelle Fanning	St James's Hospital	Going Home on NG or NJ Feeding: Experience from a Specialist Oesophagogastric Centre
<b>ACUTE CARE</b>			
36	Emer O'Driscoll	Blackrock Clinic	Nutritional Management of an Ehlers-Danlos Patient
37	Martina Coen	Tallaght University Hospital	Audit of the dietetically led management of biochemical parameters for Chronic Kidney Disease – Mineral Bone Disorder (CKD-MBD) in Tallaght University Hospital (TUH) haemodialysis patients 201

38	Sarah Gill	Tallaght University Hospital	Attitudes and experiences of individuals with Irritable Bowel Syndrome (IBS) attending a tertiary Irish hospital
39	Clodagh Landers	St Vincent's University Hospital	The effects of Orkambi therapy on muscle strength, function, body composition and quality of life in CF patients homozygous for CFTR-F508del.
40	Oonagh Smith	Tallaght University Hospital	Audit of Chronic Kidney Disease—mineral and bone disorder biochemical parameters in Tallaght University Hospital Peritoneal Dialysis (PD) population.
41	Jenny O'Mahony	Dublin Institute of Technology/Mater Misericordiae University Hospital	Distal Intestinal Obstruction Syndrome and Constipation post Lung Transplant in Ireland, Incidence and Nutritional Consequences.
42	Samantha Speidel	St Vincent's University Hospital	Assessment of oral nutritional supplement usage in St Vincent's University Hospital
43	Aishling O'Malley	Mater Misericordiae University Hospital	To Investigate The Effect of Early Dietetic Intervention on Dietary Intakes of Hip Fracture Patients in an Acute Teaching Hospital
44	Fiona Byrne	University College Cork	Multicentre randomized control trial of phosphate control with a modified as compared to standard renal diet
45	Yvonne Hickey	St Vincent's University Hospital	Hypophosphatemia in patients with Anorexia Nervosa during refeeding.
46	Lisa Shanahan	Mater Misericordiae University Hospital	Fasting events and use of compensatory feeding in an intensive care unit
<b>CANCER</b>			

47	Oonagh Griffin	Tallaght University Hospital/SVUH	Exploring the feasibility of a combined package of care for patients undergoing neo-adjuvant chemotherapy for pancreatic cancer: The FEED Study (a Fish oil supplement, pancreatic Enzyme supplement, Exercise advice and individualised Dietary counselling)
48	Louise Daly	University College Cork	Determinants of quality of life in patients with incurable cancer: an international data repository analysis.
49	Aoife Ryan	University College Cork	The BMI adjusted weight loss grading system is associated with poorer quality of life and reduced survival in patients with incurable cancer: results of an international study.
50	Erin Stella Sullivan	University College Cork	Loss of subcutaneous adipose tissue mass during systemic chemotherapy predicts poor survival in patients with Colorectal Cancer
51	Laura Keaver	Institute of Technology, Sligo	Perceptions on Integrating Nutrition into Oncology Care by Oncology Providers and Adult Cancer Survivors
52	James Murphy	Institute of Technology, Sligo	The potential of diet modification to augment chemotherapeutics
53	Alice Black	Trinity College Dublin/Our Lady's Hospice Harolds Cross	Taste and smell abnormalities in cancer, a pooled analysis
54	Leona Cremin	Dublin Institute of Technology/St James's Hospital	Dietary intakes, physical activity levels and the incidence of the Metabolic Syndrome among a cohort of patients in the National Barrett's Registry at St James's Hospital
<b>OLDER ADULTS</b>			
55	Sali Abouhajar	Dublin Institute of Technology/St James's Hospital	Investigating whether consuming meals in a dining room impacts patients' mood, level of interaction, and subsequent nutrient intake in a stroke rehabilitation ward.
56	Grace Bennett	Dublin Institute of Technology/St James's	Investigating how communal dining during protected mealtimes impacts food and nutrient intakes as well as the level of safety of

		Hospital	patient's in a stroke rehabilitation ward
57	Eileen Beagan	University College Dublin	Does milled linseed supplementation improve bowel health in older adults living in long term care?
58	Aidan O'Donoghue	Dublin Institute of Technology	Evaluation of the effect of blue plates on the nutritional intake in older persons in an acute setting
59	Shauna Clarke	Peamount Healthcare	Nutrition Support Outcome Measures Post Dietetic Intervention in an Age Related Rehabilitation Setting
60	Antje von der Schulenburg	Dublin Institute of Technology	Vitamin D deficiency is associated with inflammation in community-dwelling older adults. Findings from the English Longitudinal Study of Ageing
61	Isabelle Fagan	Trinity College Dublin/St Mary's Phoenix Park	An investigation into the laxative prescribing practices in an elderly cohort in a long-stay unit
62	Ellen Flanagan	University College Dublin	Prevalence of sarcopenia and malnutrition in community-dwelling older adults in Ireland
63	Conor Kerley	Dublin City University	A Novel 12 Week, Dietitian-Led Nutrition Curriculum Beneficially Modulates Nutrition Behavior in Older Adults Attending Community Cardiac/Pulmonary Rehabilitation
<b>NOVEL TECHNOLOGIES AND EHEALTH</b>			
64	Samantha Cushen	University College Cork	A Single-Blind, Placebo-Controlled, 3-Arm Cross-Over Trial in Humans of Novel Dairy-Derived Peptides with in vivo Ghrelinergic Effects
65	Niamh Murphy	University Hospital Limerick	Can ehealth influence self care treatment practices of the CF patient?
66	Aoife McNamara	University College Dublin	A metabolomic approach to the identification and validation of biomarkers of apple intake.

67	Martina Rooney	NICHE	The influence of a novel gene-nutrient interaction on blood pressure and measures of vascular health in apparently healthy adults.
68	Sarah Browne	Royal College of Surgeons Ireland	Modifying Eating Behaviour using Technology: The BigO Clinical Feasibility Study
69	Kate Bermingham	University College Dublin	Examining covariation between traditional markers of metabolic health and the metabolomic profile
70	Mary Finn	Tallaght University Hospital	Use of Focus Groups to Assess the Attitudes, Needs and Expectations of an App for the Management of Exercise with Type 1 Diabetes
<b>PRIMARY CARE AND OUTPATIENTS</b>			
71	Mary Finn	Tallaght University Hospital	Adherence to physical activity recommendations and barriers to physical activity among Irish adults with type 1 diabetes
72	Cathal, A Cadogan	Royal College of Surgeons in Ireland	A systematic scoping review of interventions to support evidence-based prescribing of oral nutritional supplements in primary care
73	Niamh Maher	CHO area 9 - Dublin North City and County	What do community-based nurses know about tube feeding in primary care?
74	Cathy Breen	St. Columcille's Hospital, Loughlinstown	Prevalence of Night Eating Syndrome Among Obese Adults Attending a Tier 3 Weight Management Service
75	Amanda Villiers Tuthill	St. Columcille's Hospital, Loughlinstown	Weight Cycling, Weight Loss Expectations and Confidence in Ability to Manage Weight Among Obese Adults Attending a Tier 3 Weight Management Service
76	Aisling Dunphy	University College Dublin	Exploring the relationship between diabetes distress and glycaemic management in adults with type 1 diabetes mellitus

77	Lauren Devereux	St. Columcille's Hospital, Loughlinstown	Use of Self-Monitoring Behaviours Among Obese Adults Attending a Tier 3 Weight Management Service
78	Mairead Keenan	University College Dublin	A Follow-Up Study of Irritable Bowel Syndrome Patients Previously Prescribed Low FODMAP Advice: The Effect on Gastrointestinal Symptoms, Diet Acceptability and Medication Use In An Irish Population.
79	Laura Healy	St James's Hospital	Epilepsy and Bone Health
<b>POPULATION HEALTH</b>			
80	Michael Dolan	Dublin Institute of Technology	Knowledge and intake of folate and folic acid in vegetarians
81	Claire Kerins	NUI Galway	A mixed methods systematic review of the barriers and facilitators to implementation of menu labelling interventions to support healthy food choice.
82	Aislinn McCourt	University College Dublin	Food Solutions to Improve Vitamin D Status
83	Jane Leonard	University College Dublin	Evaluation of the nutritional intake of newly recruited combat training personnel in comparison to the military dietary reference intakes

## No.1

### **Title: Investigation of exocrine pancreatic function amongst paediatric Cystic Fibrosis patients taking Ivacaftor at UHL.**

**Authors:** Donna Daly RD, Dr Barry Linnane. Paediatric Cystic Fibrosis Unit, University Hospital Limerick.

**Introduction:** Approximately 95% of all patients with cystic fibrosis (CF) are pancreatic insufficient therefore require Pancreatic Enzyme Replacement Therapy (PERT) with all fat containing food or drink consumed. Ivacaftor is a relatively new medication which uses gene therapy approach to management of CF in patients with at least one genotype of G551D or a gating mutation. It is postulated that the effects of the drug include bowel adaptations which may improve absorption, including potential improvements in exocrine pancreatic function (EPF). We want to investigate whether the EPF of the UHL paediatric CF patients taking Ivacaftor showed improvements, through measuring the Faecal elastase (FE) a biochemical marker of pancreatic function. This could have significant clinical implications such as improving the patient's absorption hence their nutritional status, altering the appropriate dietary advice and of particular interest and benefit is the possibility of providing rationale for reducing or discontinuing their use of PERT.

**Methods:** This research project is an internal department retro and prospective, cohort study of 12 of a total 13 paediatric CF patients carrying the gene G551D or a gating mutation, thus prescribed Ivacaftor. The subjects will be asked to provide stool samples to check FE levels after taking ivacaftor, which can be compared against any previously obtained FE results. The patients' medical chart and the Hospital Laboratory computer system will be reviewed to obtain data on date of birth, genotype, gender, sweat chloride and conductivity results, faecal elastase results. Details on levels of PERT dosing will be recorded where available. Excel and SPSS statistical software will be used to report on any findings on the presence of an association between changes in pancreatic function due to taking Ivacaftor. Prevalence of alterations in pancreatic function will be recorded. The dietitian will assess reported PERT dosing in line with exocrine pancreatic function status results.

**Results:** This research will measure changes in EPF, as indicated by faecal elastase levels. It will identify subjects who showed improvements in EPF and those that did not, as well as whether improvements in EPF are sustained and highlight any possible associations between a change in EPF with other recorded variables. The results will identify those subjects who need to either reduce or discontinue PERT. Data collection will be completed by December 2018 with the results ready for dissemination in January 2019.

**Discussion/ Conclusion:** The findings of this study will provide the clinicians with a better understanding of what may be anticipated in terms of, sustained improvements of EPF or not, and any other associating factors which could be relevant for other subjects prescribed Ivacaftor in the future. The anticipated benefit of this study is the identification of subjects whose pancreatic function improves to a level justifying reducing, or PERT. This would mean a significant reduction in pill burden as part of the patients' clinical care as well as have significant cost savings for the HSE due to ceasing prescription of PERT.

## No.2

### Irish school children's knowledge of the origins of their breakfast foods.

G.H.F. Liu<sup>1</sup>, S. Speidel<sup>1</sup>, C.A. Corish<sup>1</sup> and K. McAdoo<sup>2</sup>, <sup>1</sup>*School of Public Health, Physiotherapy and Sports Science, University College Dublin, Dublin, Ireland*, <sup>2</sup>*Airfield Estate, Overend Way, Dundrum, Ireland*

Understanding the origin of food can help children make informed food choices <sup>(1)</sup>. Regular breakfast consumption is positively associated with health benefits for children and adolescents <sup>(2)</sup>. The aim of this study was to explore children's knowledge of the origin of their food with an emphasis on breakfast consumption.

The frequency of breakfast consumption, attitudes to breakfast and knowledge about the origin of foods commonly eaten at breakfast were investigated in urban-dwelling pupils from primary school (*n*, 213) and secondary school junior cycle (*n*, 137) who were participating in a school-organised farm visit using a nine-question, multiple-choice, study-specific questionnaire administered just before the farm visit. Responses were indicated by pupils raising their hands to their answer of choice. To minimise response bias, pupils kept their eyes closed throughout.

The majority (80%) of school pupils consumed breakfast daily. This was significantly higher in the younger primary school pupils compared with those in junior cycle secondary school (85% vs. 53%, respectively). Breakfast consumption did not differ by gender (73% vs. 81% *p* > 0.05). Sixty-percent of children correctly identified animal products consumed at breakfast but their knowledge about the animal origin of these foods was poor (average score 45%) with no gender differences observed. As expected, the junior cycle pupils had better knowledge about the origin of foods than the primary school pupils (58% vs. 37%, respectively; *p* < 0.05). Table 1 demonstrates the overall results of the survey.

**Table 1:** Food origin knowledge of urban-dwelling school children (*n*=350)

Knowledge Questions	Possible Responses		
	Correct % (n)	Incorrect % (n)	Unsure % (n)
The following food items contain animal products:			
1. Porridge	40 (141)	26 (90)	34 (119)
2. Cheese Omelette	72 (252)	8 (27)	20 (71)
3. Baked Beans	60 (210)	4 (15)	36 (125)
4. White Pudding	59 (205)	10 (36)	31 (106)
5. Honey	46 (159)	32 (112)	22 (77)
Food origins of the following items:			
6. Porridge	25 (89)	67 (234)	8 (28)
7. Milk	49 (172)	48 (170)	3 (9)
8. Cheese	48 (166)	45 (158)	7 (25)
9. White Pudding	10 (35)	57 (198)	33 (117)

Urban-dwelling school pupils have a basic understanding about where foods consumed at breakfast originate. In relation to animal products, knowledge of their animal of origin is poor. Breakfast skipping, associated with poor food choices during the day and childhood overweight/obesity <sup>(3)</sup>, is frequent in older school pupils. As farm-based educational programmes enhance children's knowledge about food <sup>(4)</sup>, they could potentially improve Irish urban-dwelling children's food choice, their decision-making and improve their diet-related behaviours.

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## No.3

### **Title: dietary phosphate restriction in patients with chronic kidney disease receiving haemodialysis in temple street children's university hospital**

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**Introduction:** Chronic kidney disease (CKD) leads to an irreversible loss of renal function causing a reduction in clearance of phosphate from the blood. Uncontrolled hyperphosphataemia can lead to CKD-mineral bone disorder which affects the cardiovascular system as well as skeletal system. Management of CKD-mineral bone disorder involves limiting dietary intake of naturally occurring and added phosphate, and the use of oral phosphate binders. Research has shown that phosphate restriction is the least well adhered to aspect of renal dietary advice (1). However, age-appropriate education on dietary phosphate restriction can help with adherence and control of blood levels (2).

#### **Aim & Objectives:**

1. To design a comprehensive education resource on phosphate restriction
2. To educate carers and patients receiving haemodialysis using the resource developed
3. To evaluate the impact of education a) on improving dietary phosphate restriction and b) on blood phosphate levels.

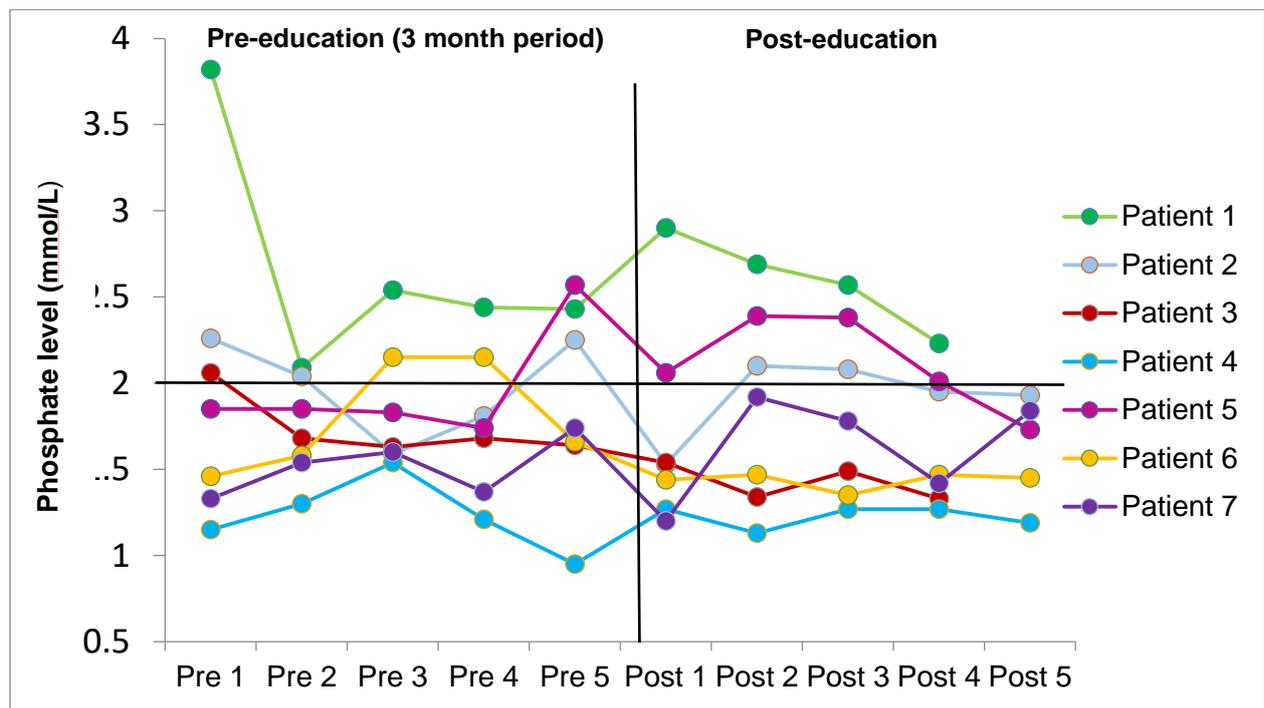
**Methods:** An educational tool was developed appreciating health literacy. Those currently on a phosphate restriction and/or phosphate binder received additional targeted education as part of their routine dietetic review. Nutritional analysis of a three-day food diary and blood phosphate levels were reviewed pre- and post-education.

**Results:** 7 patients were identified as being suitable to take part. 5 (71%) had blood phosphate levels over 2.00mmol/L pre-education. Post-education, 4 (57%) had blood phosphate levels less than 2.00mmol/L, giving a 39% decrease in levels out of range. **Figure 1** shows phosphate levels pre- and post-education. Patient 1 had the highest percentage of energy coming from processed foods and foods containing phosphate additives with 100% of levels over 2.00mmol/L pre-education.

**Conclusion:** The development of this educational resource and individualised education on all aspects of dietary restriction improves adherence and ultimately the control of hyperphosphataemia demonstrating the efficacy of this dietetic intervention. This study highlights the need for ongoing renal dietary education.

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**Figure 1:** Blood phosphate levels (mmol/L) pre- and post-education



## No.4

### Title: “Survey of Irish Dietitians’ Attitudes and Experiences of Blended Tube Feeding in Paediatrics”

#### Authors:

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**Objectives:** To examine the number of registered dietitians (RDs) who support blended tube feeding (BTF) within the home enteral nutrition (HEN) paediatric patient population in Ireland, their work setting and patient caseloads; b) attitudes and experiences of RDs towards BTF use in the paediatric population; c) current materials and future resources required to support BTF patients.

**Methods:** An online cross-sectional survey was conducted on eighty-two RDs through databases of dietetic regulatory bodies across Ireland. Demographic, attitudinal and experiential data was collected over a four-week period. Baseline information was examined through crosstabulations and Mann-Whitney U tests and qualitative analysis was used to categorize free-text responses.

**Results:** Sixty-nine RDs were based in paediatric settings and over two thirds reported HEN patients on their caseloads (n = 48/69, 69.6%). Over half of RDs with HEN concurrently managed BTF patients (n = 27/48, 56.3%, p<0.05). The greatest concentration of RDs with both patient groups were in tertiary hospitals (HEN; n = 20/48, 41.7%, BTF; n = 12/27, 44.4%). An equal number were willing to support BTF in practice or on a patient case basis (n = 36/77, 46.8%). International guidelines were most used to inform practice (n = 40/69, 58.0%). Professional training and workshops were the preferred method of learning (n = 60/73, 82.2%).

**Conclusion:** The use of BTF appears to be increasing in prevalence among HEN paediatric patients. Development of community dietetic services, in addition to professional guidelines, training and information are needed to support practice.

## **Title: An examination into the outcomes of paediatric eosinophilic oesophagitis in a national cohort**

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**Background:** Eosinophilic oesophagitis (EoE) is a chronic immune disease of the oesophagus which presents with symptoms including vomiting, dysphagia and abdominal pain. Its diagnosis involves correlating clinical, endoscopic and histologic features, including the presence of  $\geq 15$  eosinophils per high power field in oesophageal mucosa. The primary aim of this retrospective study was to assess the incidence and outcomes of paediatric EoE in Ireland from 2006 to 2015.

**Methods:** A retrospective chart review of medical charts at 3 Irish children's hospitals in Ireland was performed. A specific set of remission criteria were defined a priori. Information mined from charts was entered into SPSS and analysed in order to determine outcomes.

**Results:** A total of 339 patients with EoE were identified over the 10-year period. Most (74%) were of Caucasian ethnicity. The male: female ratio at diagnosis was 2.85:1. One third of these were <6 years at diagnosis. Clinically, 37-53% of patients were in remission on at least one follow-up over time; endoscopically 12-42% were in remission on at least one follow-up, and histologically 20-50% were in remission on at least one follow-up. Between 28-38% never improved clinically, 30-62.5% never improved endoscopically, and 37.5-70% never improved histologically during follow up across the six years. Just 4.1% (n=15) of patients ever reached combined clinical, endoscopic and histological remission. Oesophageal furrows and sclerosis at baseline decreased odds of entering endoscopic remission by 9-fold and 5.5-fold respectively.

**Conclusion:** Irish paediatric patients with EoE are predominantly Caucasian males. A large proportion of patients did not achieve clinical, endoscopic, or histological remission. A significant discrepancy exists between patients achieving clinical remission or improvement in comparison to endoscopic or histological remission or improvement. Further prospective research is ongoing to address these findings.

## No.6

### **Title: Randomised study demonstrates sustained benefits of a pre-school intervention designed to improve nutrition and physical activity practices.**

**Authors:** Diewerke de Zwart<sup>1</sup>, John Kearney<sup>1</sup>, Clare A Corish<sup>2</sup>, Corina Glennon<sup>3</sup>, Lorraine Maher<sup>3</sup>, Charlotte Johnston Molloy<sup>3</sup>

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**Introduction:** Health-promoting programmes must demonstrate sustained efficacy in order to make a true impact on public health. This study aimed to determine the effect of the Healthy Incentive for Pre-schools project on health-promoting practices in full-day-care pre-schools 18 months after a training intervention.

**Methods:** Thirty-seven pre-schools completed the initial study and were included in this follow-up study. The intervention consisted of one training session with either the pre-school 'manager-only' or 'manager and staff' using a specifically developed needs-based training resource pack comprised of written educational material and a validated health-promoting practice evaluation tool. Direct observation data of health-promoting practices were collected and allocated a score using the evaluation tool by a research dietitian at three time points; pre-intervention, between 6 and 9 months post-intervention and at 18-month follow-up. An award system was used to incentivise pre-schools to improve their scores.

**Results:** Health-promoting practice scores improved significantly ( $P < 0.001$ ) from the 6–9 month post-intervention to the 18-month follow-up evaluation. No significant differences were observed between 'manager-only' and 'manager and staff' trained pre-schools.

**Conclusions:** The introduction of a pre-school evaluation tool supported by a training resource was successfully used to incentivise pre-schools to sustain and improve health-promoting practices 18 months after intervention training

## No.7

### **Title: Improving UCD Volunteer Overseas Dietary Intervention for Children with Cerebral Palsy at Kisiizi Hospital, Uganda.**

**Author:** Carol Stephens, University College Dublin

**Background:** UCD Volunteers Overseas (UCDVO) run a two-week physiotherapy camp for children with cerebral palsy (CP) at Kisiizi Hospital, Southwest Uganda. CP prevalence is higher in rural Uganda than high-income countries, with those effected at a higher risk of malnutrition and micronutrient deficiencies. The aim of this research was to assess dietary intakes and to evaluate if the nutritional intervention met individual requirements and effected the nutritional status of Ugandan children.

**Method:** A triple-pass 24-hour dietary recall, was used to assess children's habitual and intervention macronutrient and micronutrient intakes. UCDVO's dietary intervention was evaluated by comparing dietary intakes to individual dietary requirements, using Nutritics and the Henry Oxford equation. Children's nutritional status was determined before and after the dietary intervention using anthropometric measurements assessed using the World Health Organisations (WHO) Antro and AnthroPlus software. Statistical significance between all paired data was determined using a non-parametric wilcoxon-sigend rank test.

**Results:** A total of 18 children took part. UCDVO's dietary intervention was meeting the macronutrient requirements of all children during camp. However, no child met their calcium and vitamin-A requirements, and 17% of children did not meet their iron requirements. Overall, 39% of children improved their nutritional status in at least one WHO indicator, with median group improvements observed across all WHO indicators and mid-upper arm circumference (MUAC) measurements.

**Conclusion:** The UCDVO intervention did not meet individual dietary requirements for vitamin-A, calcium and iron. Significant improvements were observed in the nutritional status of children, with the most severely wasted and thin groups benefiting the most. Vitamin A, calcium and iron are critical nutrients for children. Future UCDVO projects should ensure that meal plans include appropriate food sources and meet the requirements of all child participants.

## No.8

### **Title: The effect of sodium oxybate on the anthropometry of Irish teenagers with narcolepsy**

Author: Aishling Sheils<sup>1</sup>, Maeve Muldoon<sup>1</sup>, Siobhan O' Malley<sup>1</sup>, Irwin Gill<sup>1</sup>, Elaine Reade<sup>1</sup>, Abigail Wagle<sup>1</sup>, Catherine Crowe<sup>2</sup>, Bryan Lynch<sup>1</sup>

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**Introduction:** Narcolepsy is a neurological disorder characterised by excessive daytime sleepiness, sleep attacks, cataplexy, disturbed nocturnal sleep and obesity.<sup>1</sup> Narcolepsy with cataplexy is caused by a deficiency in hypocretin-1 peptides most likely through autoimmune destruction of hypocretin cells in the hypothalamus.<sup>2,3</sup> Hypocretin is also involved in feeding behaviour and energy balance.<sup>4</sup> Narcolepsy is commoner in children and teenagers who received the Pandemrix<sup>TM</sup> vaccination. Increasing weight is a common feature (>25%) in childhood narcolepsy. Our unit is the national tertiary referral centre for patients with suspected narcolepsy<sup>5,6,7</sup>. Sodium oxybate (Xyrem) is a second-line treatment for narcolepsy with beneficial effects on sleepiness, cataplexy and weight.

**Objective:** To examine the effect of sodium oxybate on the anthropometry of children diagnosed with narcolepsy in Temple St, Children's University Hospital, with symptom onset from April 2009 to November 2016.

**Methods:** Data was collected by retrospective chart review from patients attending Neurology clinic. Patients for whom sodium oxybate was prescribed were selected. Data collected included demographic and anthropometric information, symptoms, vaccination timing, investigations, and response to specific treatment.

**Results:** A total of 67 patients attended the Neurology clinic of whom 30 girls (45%) and 37 boys (55%). Ninety-four percent (64/67) received the Pandemrix<sup>TM</sup> vaccination. Sodium oxybate was prescribed in 24/67 (36%) of patients. The average time from diagnosis to starting sodium oxybate was (2.7years  $\pm$  2 years), with a range of one month to 9.4years after diagnosis. Body mass index SDS score at the commencement of sodium oxybate is 1.3 (IQR ?) and fell to a BMI SDS of (IQR) after 6 months, at 1 year to a BMI SDS of (IQR ?) but fell again to a BMI SDS of (IQR ?) at 2 years and (IQR) after 3 years.

**Conclusions:** Prescription of sodium oxybate was associated with reduction in weight and was well tolerated by most patients.

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## No.9

### **Title: Examining Intakes of Nutrients Associated with Cognition in Young Irish Twins.**

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**Introduction:** Adequate nutrition is essential for healthy growth and development in childhood. Vitamin D, zinc, iodine and omega 3 fatty acids (FAs) impact neurodevelopment<sup>1</sup>. Previous research by the Irish Universities Nutrition Alliance found that most children aged 5-12 years had below recommended intakes of these nutrients<sup>2</sup>. Fish is a source of all these nutrients; however, the Irish population does not meet recommended intakes for fish. The aim of this research was to assess intakes of vitamin D, zinc, iodine and omega 3 FA among Irish school-aged children and to determine if fish intake is linked with nutrient intakes.

**Methods:** 52 twin pairs from the School Friends Study were included in this research. Heights (m) and weights (kg) were recorded for each twin pair. Four day food diaries were used by parents to record all food, drinks and supplements consumed. The dietary logs were entered into Nutritics and quality checks on entries were performed. Nutrient intake and food group files were exported from Nutritics and SPSS V24 was used for statistical analysis of the data.

**Results:** Mean daily intakes for vitamin D, zinc, iodine and omega 3 were 0.61ug, 2.00mg, 35.68mg, and 0.18g respectively. No child met the Irish recommended daily allowances for vitamin D, zinc and iodine. Almost thirty per cent of twins (n=30) consumed any fish during the study period. Of these, only 23% (n=8) consumed oily fish. Fish was not one of the main food sources of vitamin D, zinc, iodine or omega 3 FAs.

**Discussion:** The findings of this study concurred with previous analysis of nutrient intakes of Irish and UK child populations. Low fish intakes may explain poor compliance with related nutrient recommendations. Public Health Agencies should reinforce fish intake recommendations for children to improve intakes of critical micronutrients.

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## No.10

### **Title: Trends in dairy consumption and micronutrient intakes in Irish twin children.**

**Author:** Helena Scully

**Introduction/Background:** Dairy products are a key component of a healthy diet. They are one of the main food groups that make up the food based dietary guidelines, with 3 servings recommended per day. They deliver critical micronutrients that are particularly important in childhood, therefore recommendations increase to 5 portions for children age 9-18 years. Research shows that Irish children are not meeting these recommendations, the majority (61%), consume less than 3 servings per day<sup>(1)</sup>. Recently consumers are opting for dairy-free alternatives to dairy products and we are starting to see this consumer trend impacting children's diets also<sup>(1)</sup>. Excluding the dairy food group could have a negative effect on the intakes of critical micronutrients for healthy growth and development. The aim of this research is to describe the dairy intake patterns of a child twin cohort and examine the impact of dairy consumption on nutrient intakes.

**Methods:** Participants included 51 pairs of twins (age 8-9 years) from the School Friends Study- Nutrition and Healthy Development. A four-day food diary, including one weekend day, was completed for each pair. Anthropometric data, height (m) and weight (kg) were also collected. All dietary data was entered and analysed using Nutritics Nutritional analysis software. Using the database of all foods consumed, a mean daily intake (g per day) of total dairy foods (Milk, Cheese, Yoghurt, Cream, Butter) consumed was calculated for each person. Intakes from discrete foods and composite dishes were included. Mean daily amounts (g per day) of each individual dairy food consumed were also calculated. Patterns of dairy consumption and relationships with nutrient intakes, were analysed using SPSS statistical analysis software (V.24)

**Results:** Dairy foods were consumed by the entire cohort, with no children avoiding dairy completely. Whole milk was the most prevalent form of cows-milk consumed, followed by semi-skimmed and skimmed, with a select cohort opting for lactose-free milk (n=2), non-cows milk (n=4) on occasion. Dairy foods contributed to the intake of critical micronutrients. There were clear differences in the intakes of nutrients depending on dairy intake patterns.

**Discussion/Conclusion:** All children consumed dairy, as an ingredient or discrete food, over the 4-day collection. This is in keeping with previous dietary surveys in this demographic <sup>(2)</sup>. Our findings suggest that dairy foods are a rich source of naturally occurring micronutrients. Greater emphasis on meeting required portions of dairy should be encouraged to increase the number of children meeting critical micronutrient recommendations.

#### **References:**

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## No.11

### **Title: The Effect of Maternal Fat Intake on Breastmilk Composition, and the Effect that this has on the Growth Trajectory of Preterm Infants.**

#### **Authors:**

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**Background/ Objectives:** Previous studies have reported a significant relationship between maternal diet and breastmilk composition. Several of these studies have highlighted the positive relationship between maternal omega-3 intake in the form of oily fish or supplementation, and higher omega-3 content in breastmilk. Other studies have focused on the relationship between breastmilk composition and growth in preterm infants. The aim of this study was to investigate the relationship between maternal fat intake, in particular omega-3 and oily fish consumption; and its effect on breastmilk composition; and in turn to investigate the effect of breastmilk composition on the growth trajectory and body composition of preterm infants.

**Methods:** Women and preterm infants were recruited in the Neonatal Unit of the Coombe Women and Infants University Hospital (CWIUH). Detailed data describing the mothers' socio-economic status, relevant medical and obstetric history, and other lifestyle factors were collected along with infant anthropometric and clinical data, via a questionnaire and the hospital medical system. Maternal diet was assessed through a habitual dietary intake questionnaire and weekly 24-hour recalls which were analysed using Nutritics version 5.024 Student Edition. 24-hour breastmilk samples were collected by the mothers on one day per week, and analysed using the Miris Breastmilk Analyser. The infants' growth parameters were monitored weekly, and weekly growth velocity was calculated. Body composition of the infants was assessed using the PEAPOD when the infants were 34-35 weeks gestational age.

**Results:** Recent fat and omega-3 intake did not correlate with the fat content of breastmilk; however recent omega-3 intake was negatively correlated with protein content ( $p=0.020$ ). Habitual oily fish intake was positively associated with the fat content of breastmilk ( $p=0.024$ ), showed a weak negative association with protein content ( $p=0.079$ ), and a strong negative association with the P:E ratio of the breastmilk ( $p=0.043$ ). Habitual oily fish intake was positively correlated with infant % fat free mass (FFM%) at 34-35 weeks ( $p=0.026$ ).

**Conclusion:** These analyses show that both recent and habitual maternal fat intake, particularly oily fish intake, can be a significant predictor of breastmilk composition. They suggest that when DHA containing fat is available, its concentration in the breastmilk rises, possibly displacing some of the protein content and lowering the P:E ratio. This in turn may moderate the growth rate of the infant but improve the quality of growth, favouring FFM accretion and neuroprotection.

## No.12

### **Title: A qualitative exploration of the attitudes and experiences of Polish breastfeeding mothers in Ireland**

**Karolina Pawlak, Elizabeth J O'Sullivan, Agnieszka Głębowska, John M Kearney**

**School of Biological Sciences, Dublin Institute of Technology, The University of Dublin, Trinity College**

**Introduction:** Non-Irish mothers living in Ireland have significantly higher rates of breastfeeding when compared to Irish mothers<sup>1</sup>. Previous research has described breastfeeding initiation rates of 53% among Irish-born mothers and 82% among Polish-born mothers in Ireland<sup>2</sup>. Many studies have identified a 'healthy immigrant effect' where we observe higher breastfeeding initiation among immigrants to a country. However, over time the more favourable behaviours of immigrant mothers tend to decline to native levels and immigrants become acculturated to their new environment. Our aim was to understand how we might encourage more Irish women to initiate breastfeeding and to breastfeed for longer and how we might prevent breastfeeding rates among Polish women from declining over time.

**Methods:** Semi-structured interviews (n=16) were conducted with immigrant Polish mothers by a postgraduate student (AG). Inclusion criteria included any Polish woman who gave birth to a healthy, single, term baby in the past year in the Republic Of Ireland (ROI) and received ante-and postnatal care in the ROI, had any breastfeeding experience in the ROI, and resided in the Dublin area. Interviews were conducted by AG in Polish and followed an interview guide developed by AG and EJOS. Interviews were audio-recorded and transcribed, then translated to English. Data were analysed by two researchers (EJOS and KP) using qualitative content analysis and NVivo software. The transcripts were read and re-read and 3 a priori themes were identified (1) attitude towards breastfeeding, (2) experience of breastfeeding information and support in Ireland, and (3) differences between breastfeeding in Poland and Ireland

**Results:** The mothers in the study were aged 25-40 years, the majority in their early thirties. Most were married (62.8%), multiparous (62.5%) and had lived in Ireland for the past five to ten years. Polish mothers perceive breastfeeding as the most natural infant-feeding method but feel that there is a bottle-feeding culture in Ireland. This culture was reflected in the healthcare system through the provision of infant formula in hospitals and minimal advice related to breastfeeding. Despite this, Polish mothers felt that Irish society was supportive of breastfeeding in public and that facilities were available to accommodate breastfeeding. Polish women felt that the Irish lifestyle may be a barrier to breastfeeding among Irish women.

**Conclusion:** Polish mothers perceive breastfeeding as the most natural mode of infant feeding. However, findings reveal both Irish and Polish mothers may encounter a lack of breastfeeding support in healthcare services. Efforts must be made to ensure more consistent breastfeeding support throughout the Irish healthcare setting.

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## No.13

### **Title: Tús Maith – A Healthy Start. An audit of staff awareness a diet and lifestyle antenatal class for women with a high BMI**

**Authors:** Eileen O’Brien, Sinéad Curran

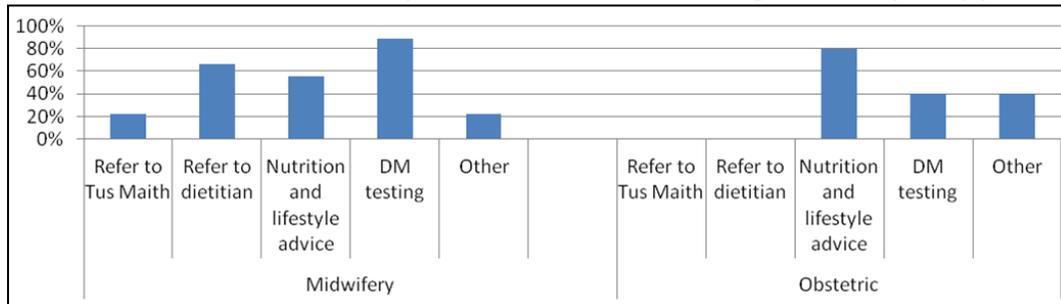
**Affiliations:** Department of Nutrition and Dietetics, National Maternity Hospital, Holles Street, Dublin 2.

**Introduction:** Despite women with a raised BMI in pregnancy having a greater need for dietetic input, they are less likely to attend dietetic appointments. To improve service provision and use of dietetic-time, a monthly group-style class “Tús Maith – A Healthy Start” for women with a BMI >25 kg/m<sup>2</sup> was set up in 2017 at the National Maternity Hospital, Dublin. The aim of this audit was to assess antenatal staff awareness of the class.

**Methods:** The audit took place in January 2018 at the National Maternity Hospital, Dublin. Midwives and obstetricians and working in the antenatal clinic on one week-day morning clinic were invited to complete the survey. The following questions were included: Do you calculate BMI for every woman?; What do you consider to be a “high BMI”?; What do you do if a woman has a high BMI?; Are you aware of the Tús Maith Healthy Start Nutrition Class for women with BMI >25 kg/m<sup>2</sup>?; Do you have any comments or suggestions for how we could best meet the nutrition needs of women with a high BMI? Data was entered and analysed using Microsoft Excel.

**Results:** In total, 14 staff completed the audit, of which 9 were midwives and 5 were obstetricians. All nine midwives strongly agreed that they calculated BMI for every woman, while three of the five obstetricians agreed to this statement. Three midwives felt that a high BMI was >25 kg/m<sup>2</sup>, while six stated >30 kg/m<sup>2</sup>. For the same question, one obstetrician stated >28 kg/m<sup>2</sup>, while four stated >30 kg/m<sup>2</sup>. Midwives were more likely to suggest referral to dietetic serves and less likely to provide nutrition and lifestyle advice than obstetricians were (Table 1). Most midwives (7 of 9) were aware of the Tús Maith Healthy Start Class, but no obstetricians were aware of it.

Table 1. Answers to “What do you do if a woman has a high BMI?” split by profession



**Conclusion:**

The audit highlighted moderate and low awareness of the new service among midwives and obstetricians, respectively. Given that both these professions represent the greatest clinical contact with pregnant women, a campaign to raise awareness of the Tús Maith Healthy Start Nutrition Class is warranted to improve nutritional status of pregnant women with a high BMI.

## No.14

### **Title: Tús Maith – A Healthy Start. An evaluation of a diet and lifestyle antenatal class for women with a high BMI**

**Authors:** Eileen O’Brien, Sinéad Curran

**Affiliations:** Department of Nutrition and Dietetics, National Maternity Hospital, Holles Street, Dublin 2.

**Introduction:** High BMI in pregnancy is associated with poorer nutritional intakes, higher gestational weight gain and adverse pregnancy and infant outcomes. Lifestyle interventions have been shown to have a beneficial effect on nutritional intakes. The aim of this audit was to evaluate the impact of the newly developed “Tús Maith – A Healthy Start” lifestyle class on nutritional knowledge and self-efficacy in consuming a healthy diet.

**Methods:** All women who were referred to the service between November 2017 and August 2018 were invited to take part in the audit. Women completed a pre- and post-class questionnaire which contained items relating to self-efficacy in consuming a healthy diet, portion sizes, sources of iron and calcium, general healthy eating in pregnancy and supplements. Source of referral and wellbeing (WHO-5 questionnaire) were assessed in the pre-class questionnaire and a feedback section was included in the post-class questionnaire. Weight was taken by the dietitian at the beginning of the class. Maternal characteristics (age, gestational age at booking, booking weight, booking BMI, parity) were collected from the medical records. Paired sample t-tests were used to compare the pre- and post-class data.

**Results:** Completed questionnaires were returned by 37 of the 49 women who attended. Of the 37, women were referred by their midwife (72.2%), doctor (16.7%), self-referral (8.3%) and other (2.8%). The women had a mean (SD) age of 33.8 (5.0) years, BMI of 33.7 (6.6) kg/m<sup>2</sup> and wellbeing percentage score of 56.4 (14.0) %. Self-reported importance of following a healthy diet in pregnancy was high both pre- and post-class (89.9 vs. 93.9%,  $P=0.09$ ), while self-reported confidence in following a healthy diet in pregnancy significantly improved from pre- to post-class (71.9 vs. 81.6%,  $P<0.01$ ). Improvements in knowledge of calcium sources (47 vs. 55%,  $P=0.04$ ) and general nutrition in pregnancy (69 vs. 91%,  $P<0.01$ ) were observed, but knowledge of portion sizes (82 vs. 89%,  $P=0.06$ ), sources of iron (45 vs. 52%,  $P=0.20$ ) and recommended micronutrient supplements (65.2 vs. 68.8%,  $P=0.21$ ) did not change. Feedback from the class showed that 100% agreed that it met expectations, the information was easy to understand and the class answered all their questions, while 95.8% agreed that they would recommend the class to a friend.

**Conclusion:** Despite the small sample size, positive changes in self-efficacy and knowledge of some aspects of healthy eating in pregnancy were observed among women who attended the Tús Maith class. Findings highlighted key areas that need to be improved in class delivery.

## No.15

### **Title: Avoiding maternal vitamin D deficiency may lower blood glucose in pregnancy.**

Authors: Walsh M., Bärebring L., Augustin H.

**Background:** Vitamin D status is hypothesised to play a role in gestational glucose control. No studies to date have examined vitamin D in relation to changes in blood glucose in pregnancy. Therefore, the aim of this study was to examine if vitamin D in early pregnancy and vitamin D trajectory was associated with blood glucose trajectory over pregnancy in a Swedish cohort. We also investigated the relation between maternal vitamin D status and excessive foetal growth.

**Methods:** In 2013-2014, pregnant women were recruited to the GraviD cohort study when registering at antenatal clinics in south-west Sweden. In the present analysis, 1928 women were included. Women with pre-existing diabetes and multifoetal pregnancy were excluded. Random blood glucose was assessed according to routine practice, in first trimester (T1, gestational week 4-16), second trimester (T2, gestational week 17-27), early (T3a, gestational week 28-35) and late third trimester (T3b, gestational week 36-41). In T1 and T3a, serum 25-hydroxyvitamin D (25OHD) was analyzed by liquid chromatography tandem mass spectrometry. Large for gestational age (LGA), as a proxy of excessive fetal growth, was defined as body weight at birth above 2 standard deviations of the gender specific population mean. Adjusted linear regression, linear mixed models analysis and logistic regression analysis were used to study 25OHD in relation to T1 blood glucose, glucose trajectory and LGA, respectively.

**Results:** Mean blood glucose increased during pregnancy (5.21 mmol/L in T1, 5.27 mmol/L in T2, 5.31 mmol/L in T3a and 5.34 mmol/L in T3b;  $p = 0.003$ ). In T1, 25OHD was negatively associated with blood glucose, i.e.  $25\text{OHD} \geq 30$  nmol/L was associated with 0.25-0.35 mmol/L lower glucose. T1 25OHD was also negatively associated with blood glucose trajectory. Higher T3 25OHD was associated with higher odds of LGA ( $p = 0.032$ ).

**Conclusion:** Avoiding maternal vitamin D deficiency in early pregnancy is associated with lower blood glucose in early pregnancy and throughout pregnancy. Higher 25OHD in late pregnancy was associated with higher odds of LGA at birth. Thus, further well-designed observational and interventional studies are required to determine the explicit effect of vitamin D on gestational glucose metabolism.

## No.16

### **Title: Can a postpartum diabetes prevention program improve dietary quality in women with previous gestational diabetes?**

**Authors:** Sharleen L O'Reilly<sup>1</sup>, Vincent Versace<sup>2</sup>, Cara Yelverton<sup>1</sup>, Edward Janus<sup>3</sup>, James Dunbar<sup>2</sup>

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**Introduction:** Women with previous gestational diabetes are seven times more likely to develop type 2 diabetes compared with those with normoglycaemic pregnancies.<sup>(1)</sup> Prevention of diabetes is possible; women with previous of gestational diabetes had 50% reduced incidence with a combination of moderate exercise and weight loss provided as a US diabetes prevention group-based program. The dietary quality of women with gestational diabetes is reported to be low<sup>(2)</sup> and we aimed to evaluate the effectiveness of a group-based lifestyle modification program improving dietary quality in women with previous gestational diabetes within their first postnatal year.

**Methods:** 573 women were randomised to intervention ( $n = 284$ ) or usual care ( $n = 289$ ). The diabetes prevention intervention comprised one individual session, five group sessions, and two telephone sessions. Dietary data was collected at baseline and twelve months using a food frequency questionnaire, which was recoded using the validated Australian Recommended Food Score (ARFS). Mixed model analyses investigated the effect of the intervention on ARFS.

**Results:** No significant changes were seen in the total ARFS (intention-to-treat [ITT] and per-protocol-set [PPS] analysis) over 12 months. The significant mean changes in ARFS sub-scores were as follows: -0.2 nuts and legumes in intervention group (95%CI -0.36, -0.05) compared with +0.03 (SD) in usual care group (95%CI -0.13, 0.18) (group by treatment interaction ITT,  $p = 0.04$ ); +0.28 dairy in intervention group (95%CI 0.08, 0.48) compared with +0.02 in usual care group (95%CI -0.14, 0.18) (group by treatment PPS interaction  $p = 0.05$ ); and +0.16 fats in intervention group (95%CI 0.05, 0.26) compared with +0.02 in usual care group (95%CI -0.06, 0.09) (group by treatment PPS interaction  $p = 0.03$ ).

**Conclusion:** Among post-GDM women, diet quality is low. Intervention engagement influenced dietary quality within the PPS showing changes in dietary quality that aligns with group session attendance. Further research is needed to improve engagement with diabetes prevention programs, potentially through co-creation of interventions.

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## No.17

### Title: Blood pressure in pregnancy- a stress test for future hypertension?

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**Background:** Pregnancy is often identified as a stress test for life as it can uncover conditions which may reappear in later life. Hypertensive disorders of pregnancy (HDP), such as preeclampsia are known risk factors for future hypertension (HTN)<sup>(1)</sup>. However, little is known about blood pressure (BP) measurements below HDP and the risk of future HTN. Therefore, the aim of this study is to investigate if maternal BP below HDP is associated with maternal BP at 5 years post-partum.

**Methods:** This is a prospective, observational study of 329 women who participated in the ROLO study (Randomised cOntrol trial of LOW glycaemic index diet for the prevention of recurrence of macrosomia), in Dublin, Ireland between 2007 and 2011. Women were followed up at 5 years post-partum. Maternal BP measurements were taken during pregnancy (13, 28 and 34 weeks' gestation and day 1 post-partum) and 5 years' post-partum. Systolic BP (SBP) and diastolic BP (DBP) were categorised at each timepoint; normal BP (SBP <120 mm Hg and DBP <80mm Hg), elevated BP (SBP 120-129mm Hg and DBP <80mm Hg), HTN stage 1 (SBP 130-139mm Hg or DBP 80-89mm Hg) and HTN stage 2 (SBP ≥140mm Hg or DBP ≥90mm Hg). Maternal characteristics, dietary intakes and lifestyle factors were recorded. Multinomial logistic regression was then carried out to evaluate the risk of future HTN following BP below HDP.

**Results:** At the 5 year follow-up 58.7% had normal BP, 14.6% had elevated BP, 18.2% had HTN stage 1 and 8.5% had HTN stage 2. Women with elevated BP at 28 and 34-weeks' gestation had 2.68 and 2.45-fold increased risk of HTN stage 1, respectively, at 5 years' post-partum compared to those with normal BP in pregnancy.

#### Multinomial Logistic Regression between pregnancy BP 5 year BP category

	HTN stage 1		
	OR (95% CI)	P	Model P
28 weeks' gestation			
Normal BP	Ref		
Elevated BP	2.68(1.36-5.27)	0.004	0.001
34 weeks' gestation			
Normal BP	Ref		
Elevated BP	2.45(1.22-4.95)	0.012	0.025

OR= odds ratio. Adjusted for age at 5 year follow up, grouping (control vs. intervention) and BMI at in early pregnancy.

**Conclusion:** Elevated BP in pregnancy is associated with an increased risk of HTN stage 1 at 5 years' post-partum. These novel findings suggest that raised BP below that diagnostic of HTN in pregnancy should be flagged for follow up after pregnancy. Furthermore, identifying those at risk of future HTN may lead to more timely non-pharmacological treatments, such as dietary interventions, aimed at reducing this risk.

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## No.18

### Title: The DASH dietary pattern and blood pressure in pregnancy

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<sup>2</sup>*UCD Perinatal Research Centre, School of Medicine, University College Dublin, National Maternity Hospital, Dublin 2, Ireland.*

**Introduction:** High maternal blood pressure in pregnancy is associated with significant adverse effects for both the mother and the fetus. In non-pregnant populations, the DASH (Dietary Approaches to Stop Hypertension) diet is associated with reductions in systolic and diastolic blood pressure, even among adults without hypertension (1). However, there is a paucity of research examining the association of the DASH diet and blood pressure in pregnancy. Thus, the aim of this analysis was to investigate the relationship between the DASH dietary pattern and maternal blood pressure in pregnancy, among healthy women without hypertensive disorders of pregnancy (HDP).

**Methods:** This is a prospective, observational study of 511 women who participated in the ROLO study (Randomized cOntrol trial of LOw glycemic index diet for the prevention of recurrence of macrosomia), in Dublin, Ireland, between 2007 and 2011. Auscultatory systolic (SBP) and diastolic blood pressure (DBP) measurements were taken at booking, week 28 and week 34 gestation. Mean Arterial Pressure (MAP) was calculated. Dietary intakes were recorded using 3-day food diaries in each trimester. Weight (kg) and height (m) were also measured at booking, week 28, and week 34 gestation. A modified version of the Fung DASH scoring criteria (2), was used to score participants on their compliance with the DASH diet. Quintiles were created that ranked women from low to high DASH compliance. Statistical analysis was carried out using ANOVA and multiple linear regression to determine the associations between maternal blood pressure (SBP, DBP, and MAP) and DASH scores.

**Results:** Mean±SD blood pressure in trimesters 1, 2 and 3 were;; SBP (112.7±11.5;; 112.4±11.2;; 112.7±10.3mm Hg);; DBP (68.0±7.1;; 66.6±7.3;; 68.1±7.3mm Hg);; MAP (82.9±7.6;; 81.9±7.6;; 82.9±7.2mm Hg). Mean±SD DASH score in trimesters 1, 2 and 3 were 26.7±5.2;; 26.7±5.3 and 26.8±5.2, respectively. Mean±SD BMI was 26.3±4.4 kg/m<sup>2</sup>. Greater compliance with DASH score throughout pregnancy was associated with lower DBP in trimesters 1 (B: -0.70 95%CI: -1.21, -0.18), and 3 (B: -0.68 95%CI: -1.19, -0.17), and lower MAP in trimesters 1 (B: -0.78 95%CI: -1.33, -0.25), and 3 (B: -0.54 95%CI: -1.04, -0.04) controlling for BMI, age, education, energy intakes and grouping. Lower SBP was observed with greater DASH compliance, in trimester 1 (B: -0.97 95%CI: -1.79, -0.15) but not trimester 2 or 3.

**Conclusion:** The DASH dietary pattern was associated with lower maternal blood pressure in pregnancy among healthy women without HDP. Despite the observational nature of these novel findings, the results demonstrate the potential for dietitians to intervene to promote cardiovascular health in pregnancy. A randomised control trial of the DASH diet in pregnancy is required to fully understand the relationship with maternal blood pressure.

**References:**

1. Appel LJ, et al New England Journal of Medicine. 1997;;336(16):1117--24.
2. Fung TT, et al Archives of Internal Medicine. 2008;168(7):713--20.

## No.19

### **Title: Maternal nutrition during pregnancy, a protocol for the development of a core outcome set.**

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**Background:** A core outcome set (COS) is set of outcomes which are agreed by consensus, to be a minimum standard to report in all trials within a particular area of research. In the area of maternal nutrition during pregnancy, outcome reporting varies. This limits comparability between studies and thus evidence synthesis. Therefore, the aim of this study is to develop an internationally relevant COS for studies evaluating maternal nutrition during pregnancy.

**Methods:** The COS is registered with the Core Outcomes for Measurement of Effectiveness Trials (COMET) registry. A systematic review will be conducted following PRISMA guidelines and the review protocol will be registered with PROSPERO. Outcomes related to nutrition will be extracted from eligible studies and catalogued using the taxonomy of the COMET initiative. A multi-stage, electronic Delphi survey will be conducted with relevant international stakeholders including healthcare professionals, researchers and patients. In the first round of the survey, participants will be asked to rank the importance of including each identified outcome in the final COS using a 9 point likert scale. Subsequent rounds of the survey will provide participants with both their individual responses from the previous round and the group consensus. Based on this, participants may change their scores or specify their reasons for remaining outside the consensus. The survey will continue until a consensus is reached or there is stability in responses. On completion of the survey, a meeting will be held with a select group of experts to finalise the COS.

**Expected Results:** We will extract the full extent of nutrition-related outcomes reported in eligible studies. A final COS will be identified which meets the needs of all relevant stakeholders.

**Conclusions:** It is anticipated that this COS will facilitate the generation of high quality international evidence in the area of maternal nutrition during pregnancy, thus broadening our understanding of the role that maternal nutrition plays in offspring and maternal health.

## No.20

### **Title: PRIME (PReterm Infants need Milk Early), A Quality Improvement Initiative in a Tertiary Neonatal Unit**

McCarthy R<sup>1</sup>, Dunne E<sup>1</sup>, Murphy M<sup>1</sup>, O'Hagan L<sup>1</sup>, Batson H<sup>1</sup>, Curley A<sup>1</sup>

<sup>1</sup>National Maternity Hospital, Holles Street, Dublin

**Background and Aim:** Maternal milk (MM) protects against necrotising enterocolitis (NEC) and sepsis in high-risk preterm infants. Earlier provision of MM, within the first day of birth, is also associated with benefits including earlier establishment of feeds, shorter duration of parenteral nutrition, less use of donor milk and formula milk and improved growth<sup>1</sup>. It has been shown that the main cause of delay initiating MM feeds at our centre is the unavailability of MM<sup>2</sup>.

PRIME is a multi-disciplinary initiative to improve the early provision of MM for preterm infants and enhance outcomes. Our aim was to increase the number of preterm infants receiving MM on the first day of life in our tertiary neonatal unit.

**Methods:** We reviewed time to first MM for all inborn infants born <32 weeks gestational age (GA) or with a birth weight (BW) <1500g in 2016. We conducted a cross-sectional survey to evaluate the knowledge and attitudes of staff towards breast milk for preterm infants. Deficits in background knowledge and training informed the development of a guideline and teaching programme. Education involved staff training, presentations and feedback. Posters were also displayed throughout the hospital for staff, mothers and their families. The effect of the interventions were evaluated using a before and after study design. For the post-intervention analysis, the first 5 infants per month born <32 weeks GA or with a BW <1500 g were included. Time to first MM was our key performance indicator.

**Results:** 121/129 infants inborn during 2016 received MM for the first time in our neonatal unit [Median (IQR) GA 29 (27, 31) weeks, BW 1230 (915-1440) g]. For the majority MM was not available to start feeds on the first day. The median (IQR) time to receive MM for the first time was 35 (18, 55) hours; 41 (34%) received MM within 24 hours of birth. Following our PRIME interventions, data was collected for 25 infants, born May – October 2018, [Median (IQR) GA 30 (26, 31) weeks, BW 997 (890, 1560) g]. The median (IQR) time to receive MM for the first time reduced to 17 (8, 25) hours; and 76% of infants received MM within 24 hours of birth.

**Conclusion:** The initial results of this hospital-wide quality improvement initiative are promising. The median time to first MM has halved in the first 5 months since this initiative commenced. Further Plan Do Study Act cycles are planned to ensure ongoing improvement.

<sup>1</sup>McCarthy R, Mason O, Vavasseur C, Milk on time saves more than an IV line. Presented at Irish Neonatal Research Symposium, 2017

<sup>2</sup>Kelly E, McCarthy R, Twomey A, Early feeding in preterm and very low birth weight infants – why the delay? Presented at European Academic Societies meeting, 2018

## No.21

### **Title: Dietary behaviours and weight management: A thematic analysis of overweight and obese pregnant women's perceptions.**

**AUTHORS:** Mavis Nomsa Mtshede<sup>1</sup>, Caragh Flannery<sup>1,2</sup>, Sheena McHugh<sup>1</sup>, Ann Ebere Anaba<sup>1</sup>, **Emma Clifford**<sup>3</sup>, Mairead O'Riordan<sup>4</sup>, Louise C Kenny<sup>5</sup>, Fionnuala M McAuliffe<sup>6</sup>, Patricia M Kearney<sup>1</sup>, Karen Matvienko-Sikar<sup>1</sup>.

**AFFILIATION(s):** <sup>1</sup>School of Public Health, University College Cork; <sup>2</sup>Health Behaviour Change Research Group, National University of Ireland, Galway; <sup>3</sup>Department of Nutrition & Dietetics, South Infirmity Victoria University Hospital, Cork; <sup>4</sup>Department of Obstetrics & Gynaecology, University College Cork; <sup>5</sup>Department of Women and Children's Health, Faculty of Health & Life Sciences, University of Liverpool, United Kingdom; <sup>6</sup>UCD Perinatal Research Centre, School of Medicine, University College Dublin, National Maternity Hospital, Dublin.

**Introduction:** The prevalence of overweight and obesity during pregnancy are increasing, with previous research indicating that obese women have poorer nutrient intakes. To develop effective antenatal dietary and weight management interventions, we need to understand women's dietary behaviours and their attitudes towards weight during pregnancy. Therefore, this study aims to explore overweight and obese women's experiences and perceptions of dietary behaviours and weight management during pregnancy.

**Methods:** Secondary qualitative data analysis was conducted using interview data from a purposive sample of overweight and obese pregnant women attending a public antenatal clinic in Cork, Ireland. An inductive thematic analysis was used to develop themes relating to women's experiences and perceptions of dietary behaviours and weight management.

**Results:** Interviews with 30 overweight and obese pregnant women were analysed. Three themes were developed: 1) 'healthy vs. unhealthy' dietary behaviour in pregnancy; 2) external influences on dietary behaviour in pregnancy; and 3) feelings about weight in pregnancy. Women discussed the culture of 'eating for two' and how pregnancy factors (physiological changes) influence their dietary habits. Negative external factors included family member's advice, in particular husbands/partners criticising or monitoring their eating habits. The final theme emphasised feelings regarding weight in pregnancy including issues of stigma, upsetting encounters with health care professionals and a lack of advice around weight management during pregnancy.

**Conclusion:** Changing the culture of “eating for two” and the stigma around weight in society is necessary to successfully implement diet and weight management interventions for overweight and obese pregnant women. Future research needs to explore effective strategies that incorporate dietary advice and weight management into routine antenatal care. Including women’s husband/partners in family oriented interventions could play an important role in improving dietary behaviours and weight management efforts for these women.

**Title: The association between sensitisation to house dust mite and food allergy in infants with moderate to severe atopic dermatitis**

**Siobhan Pyper<sup>1,2,3,4</sup>, Aideen Byrne<sup>2</sup>, Maeve McAleer<sup>3</sup>, J Holloway<sup>4</sup>**

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**Presenter & Correspondence:** [Siobhan.pyper@hse.ie](mailto:Siobhan.pyper@hse.ie) *Clinical and Translational Allergy* 2018, **8(Suppl 2):D47**

**Introduction:** Early onset, severe atopic dermatitis (AD) is a recognised risk factor for food sensitisation and food allergy. However, not all infants with AD develop the same profile of food allergy. House Dust Mite (HDM) is known to stimulate both innate and adaptive responses promoting inflammation and barrier dysfunction. Early sensitisation to HDM is associated with development of asthma and may promote food allergy in an already at risk population. The aim of this study was to examine the effect of HDM sensitisation on food sensitisation profiles and the development of food allergy in infants with early onset AD.

**Methods:** This was a retrospective, case controlled study with age matched controls. The patient cohort was identified through laboratory records at Our Lady's Children's Hospital Crumlin. All patients with sIgE testing to HDM performed between 2012 and 2016 were identified. However, only patients that had attended for treatment of AD were included in the study. Relevant clinical information was gathered from patients' case notes.

**Results:** The study population comprised 140 infants with moderate to severe AD aged 4mth to 2 yr (13.8 months  $\pm$  5.8) of whom 59% were male and 41% were female. Onset of AD occurred before 3mth in 69% of infants and before 6mth in 93% of infants. No difference in either, time of onset of AD or severity, as measured by SCORAD, was identified between the HDM sensitised and HDM non sensitised populations. 78% of the total population were food sensitised. Sensitisation to peanut, wheat and soy was significantly higher in the HDM sensitised cohort. An association between sensitisation to 2 or more foods and HDM sensitisation was demonstrated (OR 2.28  $p$  = 0.017). 56% of the total population had a history of an allergic reaction to food. HDM sensitised infants were more likely to have food allergy (OR 3.11  $P$  = 0.001) and to a greater number of foods. A significantly greater number of HDM sensitised patients (39 versus 23) had a history consistent with an allergic reaction to egg ( $p$  = 0.006).

**Conclusion:** HDM sensitisation in infants with moderate to severe AD is independently associated with a risk of food sensitisation and food allergy. Early HDM sensitisation may be a useful biomarker of infants to prioritise for early introduction of food allergens in order to prevent development of food allergy.

**Title: BabyGrow: Translating Research into Improved Nutritional Care for Preterm Infants.**

***A Dietitian-led, Multi-disciplinary Project Delivering Data Driven Innovations in Parenteral Nutrition***

**Authors:** AM Brennan<sup>1,2</sup>, ME Kiely<sup>2, 3</sup>, AM Fanning<sup>1</sup>, J Wilkinson<sup>1</sup>, S Fenton<sup>2,4</sup>, J Ryan<sup>4</sup>, BP Murphy<sup>2,5</sup>

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**Introduction / Background:** Provision of optimal nutrition to preterm and very low birth weight infants (VLBW <1.5 kg) is difficult with risk of short-term and long-term adverse effects. In the absence of evidence-based nutrition practice guidelines, nourishing preterm infants has been based on *best guess*. *BabyGrow* Preterm Nutrition and Growth Study at Cork University Maternity Hospital (CUMH) revealed nutrient deficits and growth failure, partly due to nutritionally suboptimal standardised parenteral nutrition (SPN) products.

**Methods:** Using the robust *BabyGrow* nutrient intake data, an innovative nutrient modeling technique was used to develop the nutritional compositions of two new SPN products with a supporting guideline that would safely achieve international nutrition recommendations, without exposing infants to excessive intakes as they progress from exclusive PN onto exclusive milk feeds. A 6-month collaboration with industry translated the modeled theoretical compositions into two new SPN products suitable for clinical use. This new nutrition practice was endorsed through engagement with the local multi-disciplinary neonatal team.

**Results:** In February 2018, following a dietitian-led implementation strategy, the new nutrition practice incorporating the two new SPN products and supporting guideline was introduced at CUMH. The post implementation audit shows full adoption with infants receiving safer and better nutrition. Utilising these improved SPN products instead of bespoke individualised prescriptions has delivered cost savings of ~€60,000 per annum to CUMH, a 20% saving on the overall PN costs. Very positive feedback has been received from a staff evaluation, who have reported the new developments as “user friendly”, “easy to follow”, “prescribing is faster and safer” and, “babies in my care are receiving better and safer nutrition”. The National Clinical Care Programme for Paediatrics and Neonatology PN Expert Group support the replacement of the current national suite of preterm SPN regimens with these two new products and national rollout is planned in 2019.

**Discussion / Conclusion:** This translational research has enabled the move from best guess to data driven, evidence-based nutrition practice. This will facilitate preterm VLBW infants in Ireland to be nourished according to best evidence-based practice and improve patient safety for our smallest and most fragile patients with substantial cost savings to the HSE. Collaboration between clinical and research groups deliver improvements in clinical care.

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2. Brennan AM, Fenton S, Murphy BP, Kiely ME. Transition Phase Nutrition Recommendations: A Missing Link in the Nutrition Management of Preterm Infants. *Journal of Parenteral and Enteral Nutrition*. 2017.

## No.24

### **Title: Dietitian-delivered group education improves nutrition knowledge for women with gestational diabetes at a large maternity centre**

**Authors:** Laura Harrington, Lillian Murtagh, Eileen O'Brien, Sinead Curran

**Affiliations:** Department of Nutrition and Dietetics, The National Maternity Hospital, Holles Street, Dublin 2

**Background:** The prevalence of gestational diabetes mellitus (GDM) in Europe has been estimated at 2-6% of pregnancies<sup>1</sup> with wider variations in estimates for the UK & Ireland (8–24%)<sup>2</sup>. Dietary change is the cornerstone of blood glucose management to optimise maternal and fetal outcomes. The National Maternity Hospital (NMH) is one of the busiest maternity centres in Europe, with over 9,000 births and over 100,000 maternity outpatient attendances annually. A group education session for women newly diagnosed with GDM with diet and lifestyle information delivered by a senior dietitian and a diabetes midwife specialist was introduced in 2011. Evaluation of the group was undertaken from the outset and demonstrated a significant increase in women's median knowledge scores post group education (n = 716)<sup>2</sup>. In 2017, the NMH cared for 638 women with GDM in the multidisciplinary diabetes service, 70% of whom attended for group education. Subsequent to restructuring of the dietetic component of the class, an assessment of the effectiveness of the dietetic input on women's nutrition knowledge was again undertaken.

**Methods:** The original knowledge assessment tool was adapted to produce a 12-item questionnaire on the principles of diet and lifestyle management of GDM and piloted for the dietitian component of the group education. Answers were expressed as "true", "false" or "don't know." Demographic data were also collected. Between May 2017 and April 2018, a separate questionnaire was completed before and after the dietitian section of the class (n=52 pairs). Forty-nine pairs of completed questionnaires were included in this analysis. The answers were collated and paired sample t-tests were used to compare the pre- and post- class data.

**Results:** Overall, there were more correct answers for every question post-education compared to the pre-education questionnaires, and all changes in knowledge measured were statistically significant. All but one respondent demonstrated an increase in total knowledge score post-education.

**Conclusion:** Group patient education by a dietitian for the management of GDM is an effective strategy for increasing women's knowledge regarding diet and lifestyle management of GDM at a large maternity centre. The information on the total correct scores of individual questions will be used to make improvements to the quality of information delivered to women at our centre regarding those specific topics.

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2. Farrar D, Simmonds M, Griffin S, et al. (2016) Prevalence of gestational diabetes in the UK and Republic of Ireland: a systematic review. *Health Technology Assessment*, No. 20.86 NIHR Journals Library.
3. Alayoub H, Curran S, Coffey M, Hatunic M, Higgins M (2017) Assessment of the effectiveness of group education on knowledge for women with newly diagnosed gestational diabetes. *Ir J Med Sci*

**TITLE: The implementation of a standardised nutrition assessment (Nutrition Care Process) into patient records in an Irish maternity hospital**

**AUTHORS:** L Harrington<sup>1</sup>, L Murtagh<sup>1</sup>, CA Corish<sup>2,3</sup> and S Curran<sup>1</sup>

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- 2) Irish Nutrition and Dietetics Institute, Nutrition Care Process National Steering Group
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**Introduction:** The Irish Nutrition and Dietetic Institute (INDI) developed a standardised Nutrition Assessment Structure for the Irish implementation of the Nutrition Care Process (NCP)<sup>1,2</sup>. Using the NCP ensures that patient dietetic records are standardised and easily interpreted by the multidisciplinary team. It also enables dietitians to demonstrate quality of care and effectiveness of dietetic interventions on patient outcomes.<sup>2</sup> Under the direction of the INDI NCP and the Education Steering Committees, INDI aims to embed the standardised Nutrition Assessment Structure into dietetic practice in all settings by the end of 2017. The National Maternity Hospital, Dublin, introduced the standardised Nutrition Assessment Structure in early June 2017. Compliance with the assessment structure was audited in late July 2017. The aim of this audit was to assess compliance with documenting the standardised Nutrition Assessment Structure in a large Irish maternity hospital as outlined in the 'INDI NCP Nutrition Assessment Structure Guidelines'.

**Methods:** The INDI NCP Nutrition Assessment Structure was implemented over an 8-week period in the maternity dietetic service. Fifteen new patient records were randomly chosen for audit; 5 records from each of the 3 dietitians working in maternity services. Guided by the 'INDI NCP Nutrition Assessment Structure Audit Tool', each record was scored individually under the 7 categories of the assessment structure. Scores were based on correct use of the assessment headings, accurate categorisation of information and relevance of the information recorded. Scores were computed for each record and expressed as a percentage of a maximum score. A score of 70% was set by the dietetic staff as an indicator of successful compliance.

**Results:** Fourteen of 15 records were more than 70% compliant with the INDI NCP Nutrition Assessment Structure Guidelines. The average score was 78%; the lowest score was 67% and the highest was 83%. The most frequent reasons for non-compliance were: Relevance of information and use of Comparative Standards heading

**Conclusion:** The INDI NCP Nutrition Assessment Structure was successfully implemented in this maternity hospital setting. This audit will inform revisions of the current National Maternity Hospital dietetic record template and strategies to ensure full implementation with the INDI NCP Nutrition Assessment Structure in maternity services nationwide.

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2. Haughey O, Healy LA & Corish CA (2015) Implementation of a standardised nutritional assessment process and nutrition diagnosis in Irish dietetic documentation *9th European Federation of Associations of Dietitians (EFAD) Conference, Amsterdam, The Netherlands, 23rd-24th October 2015*.

## No.26

### Title: Improving nutritional screening rates in an acute hospital setting

Grant, Emma. Department of Nutrition and Dietetics, St Lukes Hospital, Kilkenny

**Introduction:** Current guidelines<sup>1,2</sup> recommend that all patients are screened for malnutrition within 24 hours of admission to the acute hospital setting. Compliance with nutritional screening (MUST) was audited in St Lukes hospital Kilkenny in October 2017. Compliance was shown to be low at 22% (n=105). Following this, quality improvement interventions were undertaken with the aim of improving nutritional screening rates within the hospital. It was then re-audited to assess if intervention had been effective.

**Methods:** Intervention took place over a period of 5 month period, led by dietetics with involvement from Clinical Nurse Manager's (CNM's), nursing staff, Health care assistants (HCA's) and hospital management, and included the following:

- **Identifying barriers to screening:** Feedback was sought from CNM's, nursing staff and HCA's. This was used to shape the intervention: Common feedback: "too short staffed"/ "too busy", "lack of equipment", "confusing BMI calculations", "refreshers needed" "patients too sick to screen". HCA's were identified as key resource in facilitating nutritional screening, given the proper training.
- **HCA involvement:** Previously HCA's were not involved in nutritional screening in the hospital. HCAs were invited to attend training at ward level and carry out MUST screening if agreed by them and their CNM.
- **Equipment checks:** CNMs took responsibility to check wards for suitable equipment and access to required charts. BMI / weight loss charts were wall mounted to make more visible to staff (instead of in nursing folders)
- **MUST training and education:** A 20 minute training session on MUST, suitable to give a ward level was developed. In liaison with CNMs a schedule for rolling out the training was planned, focusing on one ward per week, 1 training session per day, given at ward level. This was facilitated by a dietitian. Training took place over a 10 week period. Within the dietitians department a rota for training was developed, with each dietitian taking responsibility for facilitating training on their designated wards. MUST training was also made part of new nursing staff induction days and student nurse training within the hospital
- **Monthly Reporting-** "Mini" audits (5 charts per ward) were also carried out and monthly reports sent to Nurse Managers (who disseminated to all ward staff), hospital management, and dietetics throughout the project period.

**Results:** Following the intervention, nutritional screening rates were re-audited. Compliance had improved from 22% in Oct 17 to 57% (n=115) in May 18

**Conclusion:** Working collaboratively with key staff involved in nutritional screening to plan and implement quality improvement interventions, in combination with promotion and evaluation can improve nutritional screening rates. Future audits are required to assess if this improvement can be sustained after intervention period has ended.

1. Food and Nutritional Care in Hospitals Guidelines for preventing under-nutrition in acute hospitals Department of Health and Children. 2009.
2. Report of the review of nutrition and hydration care in public acute hospitals, HIQA, May 2016

## No.27

### Title: Change in practice to Clinical Nutrition service provision to Maxillo-Facial Trauma patients.

**Niamh Flanagan, Senior Dietitian, St James's Hospital.**

**Introduction/Background:** This audit was undertaken to assess the effectiveness of a change in service provision to patients admitted under the Maxillo-Facial Trauma consultants. There is currently funding for 1WTE Registered Dietitian (RD) post in Maxillo-Facial Service covering both Oncology and Trauma consultants. Recently, there has been a marked increase in the Maxillo-Facial Oncology workload. In the absence of additional resources, as an interim measure to meet these demands and to optimise effective use of time available, patients with fractured mandibles were given a modified consistency diet information leaflet rather than receive an individualised nutrition assessment and advice from a RD. This change should release time to be re-directed towards Maxillo-Facial Oncology patients who require extensive Clinical Nutrition (CN) input as an integral part of their treatment.

**Methods:** 113 patients were prospectively recruited from August to December 2016. Nutritional status was determined using the Malnutrition Screening Tool by the RD. Data were also collected on patient demographics, medical diagnosis, length of hospital stay, anthropometry, primary RD intervention and patient statistics. Data were analysed using SPSS Version 22.0.

**Results:** Findings from this audit demonstrate that this change to practice was effective. Positive verbal feedback was received from patients, nursing and medical staff. A statistically and clinically significant amount of CN time was saved from this new diet information leaflet, in both direct and indirect patient contact time (120 and 135 minutes respectively,  $p = 0.029$ ). The time saved was clinically significant as it released time for the RD to spend on the complex Maxillo-Facial oncology patients.

**Table 1: Profile of patients pre (Nov 2016) and post (Dec 2016) change in practice**

Column1	Pre leaflet	Post leaflet
Sample size	n=24	n=21
Male (%)	63	71
Average age (yrs)	26	29
Referred on ward (%)	29	67
Length of stay	4	3
Diet leaflet (%)	n/a	71%
Healthy BMI (%)	54% (13% underweight)	57% (43% o/wt or obese)
Nutrition issues (%)	58%	29%
Direct time (mins)	330	210
Indirect time (mins)	430	295

**Discussion/conclusion:**

This audit is useful for service planning. It demonstrates an effective technique to meet service demands in areas of limited resources. This audit is a good example of a quality improvement initiative. Future work could include a re-audit in 2 years or assessing qualitative data on this change to practice.

**Acknowledgements** Mrs Sandra Brady (Clinical Nutrition Manager), Mrs Fiona Dunlevy (Clinical Nutrition Manager), Mrs Yvonne Lydon (Senior Dietitian), Melanie Martin (student).

**Title: Determine whether having a specified weigh day improves compliance with patient weighing and MUST screening guidelines on admission and one week post-admission in an acute hospital**

E. Fox, E. Ryan, J. Greene and S. Feehan, *Tallaght University Hospital, Dublin 24, Ireland.*

**Introduction:** Without an appropriate screening programme, 60-85% of patients 'at risk' of malnutrition are overlooked<sup>1</sup>. Guidelines recommend completing nutritional screening within 24-hours of admission to hospital, repeating weekly regardless of nutritional status<sup>2</sup>.

**Methods:** MUST screening was examined in four wards, two with a specified 'weigh day' (Ward A and B), and two without (Ward C and D). Eligible patients included those admitted to the study ward for a minimum of 7 days; those transferred onto or off of study wards post-admission were excluded. 80 eligible patient's MUST care plans and weight records were audited over 13 days; 36 on 'weigh-day wards', 44 on 'non-weigh day' wards.

**Results:** 18.75% (N=15) of patients presented with symptoms on admission that would indicate disruption to oral intake, putting them at risk of malnutrition.

A similar proportion on 'weigh day' and 'non-weigh day' wards were weighed on admission (63.89% vs. 68.18%) and post-admission (8.33% vs. 6.82%). A higher proportion of patients on 'weigh day' wards were weighed during their first (19.44% vs. 11.36%) and second week (30.56% vs. 11.36%) of admission. Twice as many patients on 'weigh day' wards had more than 1 weight recorded (61.11% vs. 29.55%). 16% of patients on 'non-weigh day' wards were never weighed over the course of admission. While every patient on a 'weigh day' ward was weighed at least once, 16% of patients on 'non-weigh day' wards were never weighed.

A similar proportion of patients on 'weigh day' and 'non-weigh day' wards were also screened using MUST on admission (22.22% vs. 27.27%) and post-admission (0% vs. 2.27%). Admission MUST screening was the only MUST screening conducted for 91.67% of patients on 'non-weigh day' wards, compared to 50% on 'weigh day' wards.

The MUST care plan should act as a prompt for nursing staff to calculate MUST scores, however, 13.89% of patients on 'weigh day' wards and 36.67% of patients on 'non-weigh day' wards had no form in their nursing folders.

**Conclusion** :A 'weigh day' allows ward staff to allocate a day where wards are generally quieter, enabling weekly systematic screening of all patients in a timely manner. This audit demonstrated that weigh days do not result in increased screening exactly one week post-admission, however, they do foster a culture of weighing and screening patients throughout their admission. Having a 'weigh day' helps focus ward staff and ensures that screening becomes part of the weekly routine with patients, moving wards towards achieving recommended guidelines.

### **References**

1. Elia M, Zellipour L, Stratton R. To screen or not to screen for adult malnutrition?. *Clinical Nutrition*. 2005;24(6):867-884.
2. Report of the review of nutrition and hydration care in public acute hospitals [Internet]. Hiqa.ie. 2016 [cited 26 April 2018].

## **Title: An Audit of the Clinical Nutrition Service to Patients with Head & Neck Cancer in an Acute Teaching Hospital**

**Authors:** M. Fitzmaurice<sup>1</sup>, P. Lennon<sup>2</sup>, S. Brady<sup>1</sup>, M. Merrick<sup>1</sup> and G. Kennedy<sup>1</sup>

<sup>1</sup> Department of Clinical Nutrition, St James's Hospital, <sup>2</sup> Head & Neck Surgeon, St James's Hospital

**Introduction/Background:** In recent years there has been a significant increase in the number and complexity of patients with Head & Neck Cancer referred to the dietetic service at our acute teaching hospital. Patients with head and neck cancer are more likely to experience nutrition deficiencies during all phases of illness compared to patients with any other type of cancer (National Institutes of Health, 2006). Adequate nutrition support has been shown to improve therapeutic tolerance, chemotherapeutic response, immunologic function, and decrease wound and flap morbidity (O'Neill & Shaha, 2011). NICE Guidelines 2016 suggest that all patients with head and neck cancer should have access to dietetic input. In view of increased service demands in the absence of increased dietetic resources, we aimed to compare our service provision to this gold standard and to understand the magnitude of the deficit.

**Methods:** This was a retrospective audit of dietetic input provided to patients accessing the Head & Neck Cancer Service at an acute teaching hospital. All patients who were treated for head and neck cancer at our centre in 2016 were included in the audit. Head & Neck Surgeon Mr Paul Lennon initially collated the data which we then examined. We assessed the number of those patients to whom dietetic input was provided and the type of dietetic intervention they received.

**Results:** This audit showed that of the 532 patients with Head & Neck cancer treated in our acute teaching hospital, 68% were seen by clinical nutrition. Comparing this to the internationally recognised standard, that all head and neck cancer patients should have access to specialist dietetic services, we showed a clear unmet need.

Looking at data based solely on cancer site, 507 or 95% of patients treated at our acute teaching hospital would have benefited from clinical nutrition input. This excludes 25 Melanoma cancer patients. This shows that a further 142 patients (27%) would benefit from our input but were not referred or seen. It does not take account of MST/weight loss which may further increase that figure.

Of the 365 patients who were seen by clinical nutrition, 4% required parenteral nutrition, 57% required enteral nutrition, 20% required modified consistency dietary advice and 19% required oral nutrition support.

Of those 207 patients who required enteral feeding, 46% were discharged on enteral nutrition support, ie via a longer term feeding tube. This represents significant input from clinical nutrition for education and organisation for a safe and timely discharge.

**Discussion/Conclusion:** This audit confirmed that our current dietetic service provision to patients with head and neck cancer is under-resourced. We showed a clear unmet need within this nutritionally vulnerable patient group. Allocation of additional resources to facilitate the assessment and optimisation of nutritional status in 100% of head and neck cancer patients should be considered a key strategy to improve outcomes in this patient cohort. This audit was used as evidence for a business case to support additional funding for a Senior Head & Neck dietitian.

**Title: Effect of a structured education programme in children and adolescents living with type 1 diabetes.**

**AUTHORS:** Kay Drea<sup>1</sup>, Lorraine Kelly<sup>2</sup>, Sharleen O'Reilly<sup>3</sup>

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**Introduction:** Type 1 diabetes (T1D) incidence is increasing globally. Structured education programmes (SEPs) are potentially a cost-effective solution to optimise resource usage due to these increasing patient numbers. SEPs can improve glycaemic management and quality of life (QoL) and reduce psychological distress in adults with T1D. CHOICE (Carbohydrate, Insulin, Collaborative Education) is the main SEP offered to children and adolescents with T1D in Ireland, but it has not yet been evaluated within the Irish population. We aimed to evaluate the impact of CHOICE on dietary knowledge, quality of life, HbA1c, frequency of severe hypoglycaemia and diabetes-related hospital admissions within Midlands Regional Hospital (MRH) Portlaoise paediatric patients.

**Methods:** A cross-sectional study was designed and MRH patients were recruited from the paediatric diabetes clinic. Children/adolescents and their families who attended CHOICE (n=24) were compared to those on the SEP wait list (n=14). Quality of life was assessed using the modified Diabetes Quality of Life (DQOL) questionnaire and dietary knowledge was assessed using a questionnaire developed for this study. Retrospective medical record audit was conducted for previous HbA1c results and any diabetes-related hospital admissions.

**Results:** Sixty patients were approached, 38 (63%) patients and their families were recruited. Preliminary data analysis shows dietary knowledge scores were significantly higher in the CHOICE group compared to the wait list group ( $p=0.044$ ,  $p<0.05$ ) but no significant difference was seen for HbA1c ( $p=0.166$ ), QoL ( $p=0.664$ ), diabetes-related hospital admissions ( $p=0.544$ ) or frequency of severe hypoglycaemia ( $p=1.00$ ) between groups.

**Conclusion:** Our preliminary findings indicate that CHOICE may improve dietary knowledge in children/adolescents with T1D compared to those on a wait list. Further investigations are required to identify other potential effects of SEPs and to confirm these findings.

**Title: Barriers and Enablers to Structured Education and Support Services Uptake for People with Type 2 Diabetes**

**Authors:** Megan Rayner<sup>1</sup>, Sarah McEvoy<sup>2</sup>, Dr. Sharleen O'Reilly<sup>3</sup>

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**Background:** Structured Diabetes Education (SDE) programmes are effective in promoting positive health outcomes for people living with type 2 diabetes (T2DM). However, programme uptake in Ireland is low. Evidence suggests that this may be due to lack of awareness amongst healthcare professionals and the public about available programmes. Therefore, the objectives of this study were 1) to evaluate GPs/practice nurses (PNs) and HSE staff awareness levels of self-management programmes available for people with T2DM and 2) to identify barriers and enablers to programme uptake.

**Methods:** Two surveys (GPs/PNs and HSE staff) were developed which included quantitative and qualitative questions. The Theoretical Domains Framework (TDF) was used to identify gaps in behaviour amenable to change and inform strategies to improve programme uptake. X-PERT is the SDE programme available in Community Healthcare East (CHE) and was the topic for specific questions within the surveys. Each survey underwent pilot testing. The surveys were delivered in paper and online formats. Participants were recruited from CHE using mailing lists and direct approach for GPs/PNs. Preliminary statistical analysis was carried out on quantitative data using SPSS and Chi-squared test ( $P < 0.05$ ).

**Results:** Data collection is ongoing with a total of 54 GPs/PNs and 74 HSE staff completing surveys to date. Preliminary results show that 96% of GPs/PNs and 56% of HSE staff are aware of X-PERT. Potential barriers to attending are time and location/accessibility, while evening classes and more information on X-PERT are potential enablers. TDF analysis will be carried out once data collection is complete.

**Discussion/Conclusion:** Programme uptake is a critical area to ensure SDEs can improve T2DM care. Initial results show that time and location/accessibility affect HSE staff and GPs/PNs recommending X-PERT as a programme. These and subsequent findings will enable the design of behavioural change interventions to increase uptake of SDEs and diabetes-related services in the community setting.

## No.32

### Title: A dietetic initiative to reduce DNA rates and optimise dietetic time for the Irritable Bowel Syndrome service at an acute teaching hospital.

P. Mc Namara<sup>1</sup>, S. Brady<sup>1</sup>, F. Mac Carthy<sup>2</sup>, D. Kevans<sup>2</sup>, S. McKiernan<sup>2</sup>, C. Dunne<sup>2</sup>

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**Introduction:** Over a two year period, there has been a 100% increase in the number of patients referred for a low FODMAP diet (Fermentable Oligo-, Di-, Mono-saccharides And Polyols) for Irritable Bowel Syndrome (IBS) in our acute teaching hospital, without additional dietetic resources. Together with this, a high DNA rate of up to 47%, led to the introduction of a new 'opt in' system in January 2018. From this point, patients were offered the opportunity to 'opt in' to be seen for first line dietary advice for IBS in a group session (NICE, 2017). If this advice was unsuccessful in achieving symptom improvement, patients were then given the chance to further opt in to the low FODMAP group sessions.

**Methods:** Over a nine month period 147 patients were referred for dietary advice for IBS. Five patients were given individual appointments due to co-morbidities or other factors warranting a one to one appointment. The other 142 patients were sent a letter, inviting them to attend a group talk on nutrition and IBS. At this group session, patients were given a basic overview of the low FODMAP diet.

**Results:** Of the 142 patients invited to the first line group session, 49 (35%) opted in. 40 opted in to the group sessions, 9 requested 1:1 appointments. 93 patients did not respond. Of those 49 patients, 4 then opted in for the low FODMAP diet (8%). DNA rates in the new system were 5 (10%).

Dietetic time for n = 142	Oldsystem (mins)	New system (mins)
Range of dietetic time spent prior to consultation (administration & triage phone call of 15 mins)	6- 21 (avg 13.5)	3
Total dietetic pre-consultation time for n=142	1980	426 (79% less time)
Direct dietetic consult time (face to face) n= 142	4035	1245 (69% less time)
Total time saved:	4344	

**Discussion:** There was a reduction in DNA rates from 47% to 10% and a significant saving of dietetic time (4344 minutes/ 72.4 hours total). Seventy one dietetic consultation slots were freed up by the new system in a 9 month period, thus improving patient flow through the service. These savings allowed the gastroenterology dietetic service to better manage its resources, and will ultimately lead to a more efficient and cost effective service.

**Conclusion:** This patient led initiative allows patients to engage with the dietetic service, when they feel motivated to do so. This may empower patients to become more involved in their own care, which is key to self-managing their condition.

*Reference: National Institute for Health and Clinical Excellence (2015) Irritable bowel syndrome in adults. Diagnosis and management. Clinical Guideline 61 Update 2017. Available at: <http://www.nice.org.uk/Guidance/CG61>*

## No.33

### **Title: Successful implementation of Step 5 of MUST - Identifying the challenges and improving delivery of nutritional care through a Quality Improvement Plan.**

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<sup>1</sup>School of Biological and Health Sciences, Dublin Institute of Technology; <sup>2</sup>Nutrition and Dietetics Department, Naas General Hospital

**Introduction:** The Malnutrition Universal Screening Tool (MUST) has been in place in Naas General Hospital (NGH) since 2015 and is audited quarterly. The most recent audit showed 91% compliance with steps 1-4. However, Step 5 (care plan) reported 76% compliance. This study sought to improve compliance with Step 5 and ensure patients at risk of malnutrition received appropriate diet prescription<sup>1</sup>.

**Methods:** A MUST audit was carried out for 135 patients in NGH, using the MUST audit tool (NPO and Fasting patients were excluded). The audit was carried out on eight wards over seven days (10-17/09/18). Information regarding pressure ulcers was also recorded. The ward diet list was reviewed to assess whether or not step 5 had been implemented. The diet list was then compared to the catering order form to review the number of high protein high calorie (HPHC) meals ordered. Data was analysed and patients were categorised as requiring a HPHC dietary intervention if they presented with a MUST score  $\geq 1$ , pressure ulcers<sup>2</sup> and/or ordered a small meal.

**Results:** Compliance with Step 5 of MUST was 76% across the hospital. A total of 12 patients presented with a MUST score of 1, and 19 patients had a MUST score of  $\geq 2$ . Six patients had pressure wounds at the time of the audit and 24 patients ordered a small meal. In total, 52 (38.5%) patients required a HPHC diet. However, only 30 of these patients were listed to require HPHC on the diet lists across the hospital. Of these thirty patients, 18 received a HPHC meal according to the catering list. Therefore an overall discrepancy of 65% was observed between patients requiring HPHC meals and patients receiving HPHC meals. These results were presented to the Nutrition and Dietetics Department and the Nutrition Steering Committee, alongside a draft QIP for the diet list. The diet list was then redesigned with input from all stakeholders. In order to minimise the loss of information, the new diet list was designed using the ISBARx3 communication template. The new diet list incorporates drop-down menus to ensure that the language used to describe patients' dietary requirements is the same across the hospital.

**Discussion:** This audit identified the limitations of correct implementation of dietary care plans. By identifying the issues and developing a QIP with all relevant stakeholders, a new method for implementing the diet list has been devised. This will ensure continuity of care and minimise information loss so that all patients receive correct meals. In addition, the new diet list is a universal tool that can be easily communicated and understood by all staff in NGH.

**References:** 1. Health Service Executive 2018. *Food Nutrition and Hydration Policy for Adult Patients, Staff and Visitors in Acute Hospitals*. 2. Health Service Executive 2018. *HSE National Wounds Management Guidelines*.

## No.34

### **Title: Changes over time: Review of Clinical Nutrition input on a discharge planning ward in the first 10 months of operation in an acute teaching hospital.**

**Authors:** C. Hughes<sup>1</sup>, S. Brady<sup>1</sup>, R. Ashline<sup>1</sup>, R. McGowan<sup>1</sup> and Dr J. Browne<sup>2</sup>

<sup>1</sup>Department of Clinical Nutrition, <sup>2</sup>Consultant Physician and Geriatrician, St James's Hospital.

**Introduction:** A discharge planning ward was opened on 15<sup>th</sup> January 2018. It is comprised of 23 beds which have been commissioned as short stay beds for both medical and surgical patients who are medically stable and nearing discharge however require additional support from the multi-disciplinary team prior to discharge. At present Clinical Nutrition (CN) have 0.5 WTE allocation which incorporates a weekly MDT meeting and limited priority service for inpatients.

**Methods:** Prospective re-audit which included collection of data from 45 inpatients (27 females and 18 males) admitted from August to October 2018. Data was collected from nursing notes, medical notes and dietetic records. Anthropometric data (weight and height) was obtained from nursing and dietetic records and also was directly measured on the ward. In cases in which height could not be measured ulna length was used as a surrogate measure.

**Results:** The average age was 80years (mean BMI on admission 25.9kg/m<sup>2</sup> and mean weight on admission 68.5kg). In total 26% of patients scored a MST of 2 or greater indicating that over one quarter of patients on the ward were at risk of malnutrition, however a further 20% of patients MST was not completed indicating that levels of malnutrition on this ward may be higher than reflected. This is confirmed by the numbers of patients known to CN as 33% had already been seen in the main hospital prior to transfer and 40% had been seen on previous admissions. Given the limitations of the ward stable patients are discharged prior to transfer on their nutritional plan. 100% patients with BMI of < 19 were seen by CN during their admission on the discharge planning ward.

Overall 44% of patients had CN input during this period versus 31% during January to April. In line with these increased referrals these patients also required more dietetic time. For the 20 patients who were active during their stay on the discharge planning ward there was a total of 76 interactions versus 61 interactions for 26 patients between Jan-April. Showing that an average of 3.8 interactions per patient were required vs 2.3 interactions earlier in the year. This may have been attributed to the increase in referrals from different specialities as between January to April 17.5% of patients were transferred over from a surgical speciality, rising to 22.2% of patients between August to October.

**Discussion/Conclusion:** Overall comparisons across the time period of August to October versus earlier in the year (January to April) show that there has been nearly a 15% increase in referrals to Clinical Nutrition. This may be attributed to increased knowledge and awareness of the ward within the main hospital leading to variation of referrals across different specialities. The presence of a dietitian allows more nutritionally complex patients to transfer across, releasing beds from the acute floor and improving patient flow. Initially there were barriers to screening as it was a new ward with agency staff and staff turnover however processes are now in place to ensure patients are weighed weekly and screened on transfer to ensure timely referrals to CN with the overall aim of expediting safe discharges.

## No.35

### Title: Going Home on NG or NJ Feeding: Experience from a Specialist Oesophagogastric Centre

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**Background:** Our practice has advanced in recent years to discharge a growing number of patients home on nasogastric (NG) and nasojejunal (NJ) feeding. We aim here to describe the experience from a specialist oesophagogastric centre.

**Methods:** We retrospectively reviewed the medical and dietetic charts of all patients discharged home with a NG or NJ feeding tube over a six-year period from 2012 to 2018.

**Results:** A total of 17 patients were discharged home, 11 on NG feeding and 6 on NJ feeding. In all cases a senior oesophagogastric dietitian led the risk assessment and supported the multidisciplinary decision to discharge. Nutrition support through neoadjuvant treatment of oesophageal cancer was the most common indication for discharge home with nasoenteric feeding. See table 1.

**Table 1. Diagnoses and indications for nasoenteric feeding**

Primary Diagnosis	Specific indication for nutrition support	NG	NJ
Oesophageal Cancer (N=11)	Neoadjuvant treatment (N=8) Palliation (N=3)	N = 11	N= 0
Gastric Cancer (N=4)	Adjuvant treatment (N= 1) Late effects of radiation (N= 2) Palliation (N=1)	N= 0	N= 4
Ehlers Danlos Syndrome (N=1)	Gastric dysmotility (N=1)	N=0	N=1
Achalasia (N=1)	Pregnancy (N=1)	N =0	N=1

The total number of days at home on feeding was 786 days (median 35 days; range 1-173 days). Thirty one tube complications were recorded. Per patient the median number of complications was 1 (range 0-5). Seven complications necessitated readmission while 24 complications were managed in the outpatient, emergency, intervention radiology or endoscopy departments thereby avoiding hospital readmission. Consequently, notional bed day savings were estimated at €72,000.

**Table 2. Tube complication and hospital site of management**

<b>Complication N=31</b>	<b>Endoscopy</b>	<b>Emergency Department</b>	<b>Intervention radiology</b>	<b>Dietitian- led outpatients</b>	<b>Readmission</b>
Tube blockage N=24	1	2	0	17	4
Tube dislodgement N=5	2	0	2	0	1
Split tube N=1	0	0	0	0	1
Small intestinal perforation N=1	0	0	0	0	1

**Conclusion**

Our experience indicates that carefully selected oesophagogastric patients can be managed effectively, safely and economically with NG and NJ feeding at home. Complications were infrequent relative to the total number of successful days at home. Tube blocking and dislodgement were the most frequently encountered complications and the majority were managed in the outpatient setting, avoiding readmission. With practice advancing to manage increasing numbers of home NG and NJ discharges, service and workforce planning must consider multidisciplinary outpatient expertise to manage tube complications.

## No.36

### Nutritional Management of an Ehlers-Danlos Patient

Authors: E. O'Driscoll, Dr D. O'Donovan

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**Introduction:** Ehlers-Danlos syndromes (EDS) are a group of rare inherited conditions that affect connective tissue. Gastrointestinal symptoms in EDS are common in that some patients rely on total parenteral nutrition (TPN) to meet nutritional requirements. This case study explores the successful transition from TPN back to enteral and oral nutrition

**Aim:** To discontinue TPN and to meet nutritional requirements through enteral and oral feeding. Long term management aims to meet nutritional requirements through PEJ which has been placed and this which would significantly improve quality of life

**Method:** 22 year old female student presented for nutritional management with hypermobile Ehlers-Danlos syndrome (hEDS). At this time patient was on home TPN for three years as all other means of meeting nutritional requirements had previously failed. Patient was admitted to ascertain possibility of discontinuing TPN. Several feeding regimes trialled through the preferred post pyloric NJ feeding route and following this successful placement of PEJ.

**Results:** After a trial of several feeding regimes through NJ feeding route a semi-elemental tube feed was successfully tolerated resulting in patient being able to meet nutritional requirements through combination of NJ and oral nutrition. PEJ was successfully placed and TPN was discontinued.

**Conclusions:** There are no specific evidence based management guidelines for the management of GI symptoms in EDS patients and further studies are required. We have shown that intensive dietetic intervention is an integral part of long term MDT management of EDS patients resulting in cost effective and improved quality of life outcomes

**Title: Audit of the dietetically led management of biochemical parameters for Chronic Kidney Disease – Mineral Bone Disorder (CKD-MBD) in Tallaght University Hospital (TUH) haemodialysis patients 2017**

Coen M.<sup>1</sup>, Wall C.<sup>2</sup>, Griffin B.<sup>2</sup>, Mellotte G.<sup>2</sup> and Lavin P.<sup>2</sup>. <sup>1</sup>Department of Clinical Nutrition and Dietetics, <sup>2</sup>Trinity Health Kidney Centre, Tallaght Hospital, Dublin. Correspondence: [martina.coen@tuh.ie](mailto:martina.coen@tuh.ie)

**Introduction:** Secondary hyperthyroidism (SHPT), a contributory cause to cardiovascular disease (CVD), is very common in end stage kidney disease (ESKD). SHPT can result in elevated calcium (Ca<sup>2+</sup>), phosphorous (PO<sub>4</sub>) and intact parathyroid hormone (iPTH) levels and Vitamin D metabolism abnormalities. Treatment of SHPT is focused on correcting biochemical and hormonal abnormalities to limit their consequence and achieved by intensive dietary education, monitoring and support alongside tailored drug therapy. CKD-MBD management is a multi-disciplinary approach co-ordinated by the dietitian in TUH. The aim of this audit is to benchmark our CKD-MBD biochemical parameters against the TUH Adult Medicines Guide 2018 targets. Serum Vitamin D levels were also included in this audit but not reported here.

**Methods:** 81 haemodialysis patients’ last available blood results in the last quarter 2017 were included. Values were compared to the agreed local targets and to those achieved in the UK/NI using the last available Renal Registry (UKRR) Annual Report of 2015.

**Results :Table 1:** Percentage (%) of patients meeting local targets vs % of UK/NI patients meeting UKRR targets

	Tallaght HD 2017 (n =81)	2015 UK	2015 NI
<b>Simultaneous control of all 3 parameters</b>	33.3	27.6	27.4
<b>Meeting 0 parameters</b>	2.5	4.6	3.5

**Table 2:** Percentage (%) of patients meeting local targets vs % of UK/NI patients meeting UKRR targets

	Ca(c)			PO <sub>4</sub>			iPTH		
	TUH HD 2017	2015 UK	2015 NI	TUH HD 2017	2015 UK	2015 NI	TUH HD 2017	2015 UK	2015 NI
<b>Within target %</b>	85.2	79.3	79.3	58	57.1	56.5	65.4	56.8	59.3
<b>Below target %</b>	13.6	10.6	10.1	0	14.1	15.3	19.8	24.4	32.8
<b>Above target %</b>	1.2	10.1	10.6	42	28.7	28.3	14.8	18.8	7.9

**Conclusions:** 33.3% of TUH patients met all 3 targets which is above what is achieved in both the UK and NI. As the methodology was changed this year to align with UKRR methodology, there are limitations in drawing comparisons to previous year's results. A higher number of TUH patients achieved Ca(c) levels within target than in UK and NI, however our range is broader than in the UKRR. Reassuringly there is a very low number of patients with Ca(c) above target. Patients achieving PO4 within target is marginally above the UK and NI averages but ongoing improvement is required in reducing PO4 levels in those patients above target (42%). An improvement should be expected in 2018 due to a period of service downtime in 2017. In TUH, a higher percentage of patients achieved iPTH within target than in the UK and NI, despite their higher upper limit. In TUH 17.3% of the 19.8% of patients with iPTH below target, either had a history of parathyroidectomy or were not on active treatment to lower iPTH. This audit will be repeated for 2018 to compare year on year trends.

## **Title - Attitudes and experiences of individuals with Irritable Bowel Syndrome (IBS) attending a tertiary Irish hospital**

Authors - Elaine Neary, Sarah Gill, Sinead Feehan. Tallaght University Hospital

**Introduction:** IBS a chronic disorder affecting up to 20% of people in Ireland. There is no data on the Irish individual's experience of IBS. Services for patients with IBS are scarce and our hospital has historically had no dietetic service for these patients. Patients referred from the gastroenterologists have been kept on a waiting list and prior to the establishment of a dietetic service a survey was undertaken to investigate the attitudes and experiences of these individuals with IBS.

**Methods:** Participants were identified from a waiting list of referrals from gastroenterology to the dietitian with a diagnosis of IBS. The authors devised and conducted a survey online and via post between Mar-Oct 2018. 135 patients responded, responses were anonymous.

**Results:** Survey respondents were predominantly female (77%). 53% were under 45, 47% over 45. Overlap with other GI diseases was common; 17% reported inflammatory bowel disease (IBD), 8% diverticular disease, 4% coeliac disease however the authors noted the terms IBS and IBD were being used interchangeably by some.

36% of respondents were not at all satisfied with the current service provision for IBS. Only 4% were very satisfied. On a scale of 0-10, quality of life was rated >5 in 73% while severity of IBS symptoms were rated >5 in 92%. Bloating was the most prevalent symptom (82%) followed by abdominal pain and cramping (76%), wind (75%), diarrhoea (58%), constipation (44%) and others, including nausea, heartburn, reflux, back pain, foggy head, urgency (19%). The healthcare professional patients would most like access to is a dietitian (74%). 62% would like access to a doctor and 12% a psychologist. Our patients mostly get their information about IBS from the internet (33%) and their doctors (30%). However 26% receive no information or take a trial and error approach and only 4% report receiving information from a dietitian despite 78% of respondents feeling their symptoms are affected by what they eat. Other comments made by patients centred around 4 themes; frustration and anger at waiting times and the lack of services, the impact of IBS on their quality of life, doubt and confusion over their IBS diagnosis, and suggestions for service improvement.

**Conclusion:** These results suggest that individuals with IBS are unhappy with current services for their condition. It highlights that individuals believe diet affects their symptoms and because of this 77% of patients want access to a dietitian. Reliable sources of information are low due to lack of appropriate services in hospital or primary care and this has left patients with doubt and confusion over their diagnosis and how to manage it.

## No.39

### **Title: The effects of Orkambi therapy on muscle strength, function, body composition and quality of life in CF patients homozygous for *CFTR-F508del*.**

Reilly CM, O'Shaughnessy L, Mc Keown C, Kelly S, Buckley R, Landers C, Gallagher CG, McKone EF. National Referral Centre for Adult Cystic Fibrosis. St Vincent's University Hospital, Dublin.

**Introduction/Background:** Reduced Cystic Fibrosis Transmembrane Regulator (CFTR ) expression plays an intrinsic role in skeletal muscle atrophy in Cystic Fibrosis (CF) leading to reduced exercise tolerance. Orkambi® (Lumacaftor/Ivacaftor) is a new therapy for the treatment of cystic fibrosis. The aim of the study is to investigate changes in muscle strength, exercise tolerance and body composition in patients treated with Orkambi® across the spectrum of lung disease severity. Secondary outcome of Quality of Life was also assessed.

**Methodology:** Eighteen patients with CF and two copies of the *CFTR-F508del* mutation and who were clinically stable were included in the study. Baseline characteristics of age, body mass index (BMI) and forced expiratory volume in 1 second (FEV1) were recorded. Isokinetic muscle strength of the quadriceps was assessed using the Biodex® Isokinetic System, and grip strength assessed using hand held dynamometry. Body composition was assessed by measuring fat mass and fat free mass using the 'BOD POD (Body composition through Air Displacement Plethysmography)', tricep skin fold and mid arm circumference. Patients then underwent cardio-pulmonary exercise testing (CPET) with VO2max as the primary variable measured. Quality of Life measurement was taken using CFQ-R, Ryff Scale, GAD-& and PHQ-9. No additional exercise or dietetic intervention was prescribed, with follow up measurements carried out at least 3 months after commencing the drug therapy.

**Results:** 20 subjects were enrolled with an average age of 28.3years. 16 subjects completed the study. 1 subject was removed due to an adverse drug reaction, 1 subject could not be re tested due to infection control reasons and 2 subjects were lost to follow up.

<b>Body Composition, Strength and Cardiopulmonary Exercise Results</b>					
<b>Measure</b>	<b>Baseline</b>	<b>3-6 months</b>	<b>Measure</b>	<b>Baseline</b>	<b>3-6 months</b>
<b>BMI</b>	23.1	23.6	<b>FEV1 %</b>	85.9	86.6
<b>Fat Free Mass</b>	75.9	61.4	<b>FVC %</b>	99.1	100.7
<b>Fat Free Mass %</b>	79.1	77.6	<b>VO2 max %</b>	91.3	86.3
<b>Percentage Fat %</b>	20.8	22.4	<b>Heartrate %</b>	88.5	89.1
<b>Hand Grip</b>	41.4	41.5			

**Discussion/ Conclusion:** Patients commenced on Orkambi<sup>®</sup> gained statistically significant increases in Body Mass index (BMI). No change was noted for either muscle strength or cardiopulmonary exercise testing during the test period, even when controlled for weight. Increases in BMI in this population did not result in an increase of strength, functional exercise or lean mass over 3 months.

Conclusion: Greater emphasis needs to be placed on adequate exercise prescription, activity levels and dietary intake, in this population within the context of new CFTR modulator therapies to optimise nutritional status and body composition.

## No.40

### Title: Audit of Chronic Kidney Disease–mineral and bone disorder biochemical parameters in Tallaght University Hospital Peritoneal Dialysis (PD) population.

**Authors:** Smith O., Coen M., Wall C., Mellotte G., Lavin P., Griffin B., Khilji S.  
Tallaght University Hospital (TUH), Dublin.

**Background:** Renal replacement therapy patients experience an increased risk of mortality and cardiovascular morbidity that is not fully explained by more traditional cardiovascular risk factors. Numerous studies suggest that CKD–mineral and bone disorder (CKD-MBD) is involved in the pathogenesis of this higher risk. International and subsequently unit guidelines have attempted to set target values for individual parameters in an effort to ameliorate this systemic and often progressive disorder. In addition to focusing on single substrate control, which can lead to unwanted alterations of other related parameters, adequate simultaneous control is of key importance. The purpose of this audit is to compare the CKD-MBD biochemical parameters of our PD population against local target levels, bench mark our performance against UK standards, using the UK Renal Registry (UKRR) Annual Report of 2015, and identify areas that require improvement.

**Methods:** 36 peritoneal dialysis patients were included in this audit. Each patient’s last monthly serum Ca<sup>2+</sup>, PO<sup>4-</sup> and iPTH of the final quarter of 2017 were recorded.

#### Results:

**Table 1:** Summary statistics for Tallaght PD & UKRR PD population.

	TUH			UKRR		
	Median	Lower Quartile	Upper Quartile	Median	Lower Quartile	Upper Quartile
<b>Corr Calcium (mmol/L)</b>	2.4	2.2	2.5	2.4	2.3	2.5
<b>Phosphate (mmol/L)</b>	1.5	1.2	1.7	1.5	1.3	1.8
<b>PTH (pg/ml)</b>	288.5	206.8	412.3	282.9	160.3	499.8

**Table 2:** Percentage of Tallaght pts meeting unit targets vs UK average with UKRR targets.

	Ca(c)	Phos	PTH
<b>Within target TUH (UKRR)</b>	77.8(77.8)	61.1(61.3)	63.9(63.6)
<b>Below target TUH (UKRR) %</b>	11.1 (7.4)	5.6(7.5)	16.7(22.6)
<b>Above target TUH (UKRR) %</b>	11.1(14.8)	33.3(31.2)	19.4(13.9)

**Table 3:** Percentage of patients meeting Unit targets vs UK & Northern Ireland average

	PD	UKRR	NI
<b>Simultaneous control of all 3 parameters %</b>	33.3	33.1	33.3

**Conclusions:** Median values and percentage of patients meeting targets are reassuringly similar to the UK average. It was seen to be positive that a smaller proportion of patients had serum Ca<sup>2+</sup> above target (11.1 vs 14.8%) and PTH below target (16.7 vs 22.6%, respectively) than their UK counterparts. The percentage above PTH range can be explained by the UKRR broader target range. However, there is room for improvement; when individual biochemical components are considered in combination only 33% of patients met all parameters. Based on these results it is evident that phosphate management is key in achieving improved control of these measures and requires ongoing multidisciplinary focus.

**No.41**

**Title: Distal Intestinal Obstruction Syndrome and Constipation post Lung Transplant in Ireland, Incidence and Nutritional Consequences.**

**AUTHORS:**

Jenny O'Mahony<sup>1,2</sup>, Sandra Murphy<sup>3</sup>, The National Heart and Lung Transplant Team<sup>4</sup> & Suzanne Doyle<sup>1,2</sup>.

<sup>1</sup>School of Biological Sciences, Dublin Institute of Technology. <sup>2</sup>Department of Nutrition and Dietetics, Trinity College Dublin. <sup>3</sup>Department of Clinical Nutrition and Dietetics, Mater Misericordiae University Hospital Dublin. <sup>4</sup>The National Heart and Lung Transplant centre of Ireland, Mater Misericordiae University Hospital Dublin.

(Abstract not available)

## No.42

### **Title: Assessment of oral nutritional supplement usage in St Vincent's University Hospital**

Authors: Speidel, Samantha; Monahan, Cara; Hickey, Yvonne; Daly, Helena; Pilkington, Abigail.

Department of Nutrition and Dietetics, St Vincent's University Hospital, Elm Park, Dublin 4.

**Introduction/Background:** Oral nutritional supplements (ONS) are commonly prescribed in the acute care setting to support patients to meet their nutritional requirements. This is the first hospital wide study investigating ONS usage in St Vincent's University Hospital (SVUH).

This study aims to:

- Quantify and categorise ONS prescribed in SVUH,
- Examine the demographics of patients prescribed ONS,
- Assess the weight, height and BMI of patients prescribed ONS,
- Measure the number of patients prescribed ONS currently under the care of a CORU Registered Dietitian in SVUH.

**Methods:** All 22 wards in SVUH were audited (N=428). Data collection commenced in July 2018 and finished in September 2018. Data was collected prospectively to assess current ONS usage. On each ward, data was collected on all patients prescribed ONS (N=107). The type and quantity of ONS prescribed was noted from the drug kardex. Demographic data (age, gender), anthropometric data (weight, height, BMI) and medical information (main diagnosis, Consultant) was extracted from medical and nursing notes, and it was also noted if the patient had been assessed by a CORU Registered Dietitian. Patient identifier information was omitted to ensure patient confidentiality. Data was collated on a standardised proforma and stored on an excel spread sheet.

**Results:** In SVUH, 22.9% of patients (107/468) were prescribed ONS. Of those patients, 49 were female (45.8%) and 72.9% of patients were under a medical speciality (78/107). Mean (SD) age was 67.8 (19.9) years. BMI data was available in 68.8% of patients (75/109). The mean (SD) BMI was 23.6 (6.67) kg/m<sup>2</sup>. 85% of patients (91/107) had received a nutritional assessment by a CORU Registered Dietitian in SVUH during their inpatient admission. 17 different ONS products were prescribed at various dosages. Fortisip Compact and Altra Shot were the most commonly prescribed products. The average nutrient contribution of ONS to the diet was 797kcal/day and 32.3g protein/day. Kilocalories provided by ONS ranged from 203-3030kcal per patient per day.

**Discussion:** Over 1 in 5 patients in SVUH are prescribed ONS, of these 85% were assessed by a CORU Registered Dietitian. The average BMI of patients prescribed ONS is within the normal range (20kg/m<sup>2</sup>-25kg/m<sup>2</sup>). Milk style ONS were most commonly prescribed, followed by modular products. Over-prescription of ONS is a concern, with ONS providing up to 3030kcal/day. Further research is required to assess ONS compliance.

**Conclusion:** This study provides baseline information on ONS usage in SVUH, providing a benchmark for future studies. Food first initiatives, increasing the kilocalorie and protein content of hospital menus are under development in SVUH, which may impact future ONS usage. ONS usage requires ongoing monitoring.

**Title: To Investigate The Effect Of Early Dietetic Intervention On Dietary Intakes Of Hip Fracture Patients In An Acute Teaching Hospital**

**Authors:**

O'Malley A<sup>1</sup>, Fogarty M<sup>1</sup>, Keaskin L<sup>1</sup>, Synnott K<sup>2</sup>, Duggan J<sup>3</sup>, McKiernan M<sup>1</sup>

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**Introduction:** Malnutrition is an issue post hip fracture due to increased nutritional requirements. A dietetic audit in 2017 observed that dietary intakes were inadequate and oral nutritional supplement (ONS) use improved dietary intakes in hip fracture patients however these patients were waiting up to 7 days (median, range: 2-17) for Dietitian referral. The aim of this audit was to investigate if early dietetic referral and intervention improved energy and protein intakes of hip fracture patients.

**Methods:** A prospective audit of hip fracture patients aged over 64 years who were referred to the Dietitian was conducted over a five week period in 2018. The Dietitian identified patients at weekly multidisciplinary team meetings. Brief intervention including ONS prescription was completed by the Dietitian within 1 working day of the patient referral. Dietetic assessment was conducted within 3 working days. Energy and protein intakes were quantified from nurse administered food charts by the Dietitian. The percentage energy and protein requirements achieved on initial dietetic assessment were compared to the audit in 2017 conducted in the same hospital, following the same protocol.

**Results:** Of the ten patients referred to the Dietitian, referrals were made at day 2 (median, range: 0-10) of admission in 2018 versus day 7 (median, range: 2-17) in 2017. On average the initial dietetic intervention was on day 2 of referral. An increase in energy requirements achieved was observed from 2017 – 2018, from 52% (median, range: 17-88) to 74% (median, range: 34-100). Similarly, protein requirements achieved increased from 65% (median, range: 21-95) to 80% (median, range: 27-100).

**Conclusion:** Early dietetic intervention increases energy and protein intakes in hip fracture patients earlier in their hospital stay thus improving their nutritional status in the days following surgery and which may have the potential to decrease malnutrition risk in this patient group.

## No.44

### **Title: Multicentre randomized control trial of phosphate control with a modified as compared to standard renal diet. .**

Fiona Byrne<sup>1,2,3</sup>, Barbara Gillman<sup>4</sup>, Renal Interest Group of Irish Nutrition & Dietetic Institute, Joseph A. Eustace<sup>2,3</sup>

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**Background:** The standard renal diet fails to distinguish between phytate and non phytate bound phosphorus (P), despite consensus that the latter is poorly absorbed A modified renal diet based on the increased use of pulses, nuts and whole grains, the avoidance of P additives and of over-prescription of protein may offer improved or similar P levels as the standard renal diet but with a wider food choice.

**Method:** We conducted a national, multicentre, pragmatic, parallel arm, open label, randomized controlled trial (1:1 allocation ratio) of 1 month of modified vs. standard diet in 74 prevalent anuric adults on maintenance hemodialysis with a 3 mt mean pre-dialysis serum phosphate ([P]) >1.6mmol/L and a stable phosphate binder and vitamin D prescription. Subjects with a history of severe hyperkalemia, parathyroidectomy or recent acute illness were excluded. Subjects were re-educated on the standard diet or educated on the modified diet by the renal dietitian. Analysis was on a modified intention-to-treat basis of the difference between diets in follow-up [P] minus baseline [P] using an independent sample t test and a 2 sided type 1 error rate of 0.05.

**Results:** We recruited 74 subjects from 13 university dialysis units. Two patients did not have a follow-up [P], due to an insufficient sample and transplantation and thus could not contribute to the primary analysis. The study population was 96% Caucasian, 69% male, 36% of subjects had diabetes. Both diets were similarly well tolerated. The modified diet resulted in a significantly higher phytate and fiber intake (both  $p < 0.01$ ). Baseline and follow-up [P] in modified diet arm was 2.1 (0.5) and 2.0 (0.7) mmol/L, and in the Standard Diet arm were 2.0 (0.6) and 1.9 (0.6) mmol/l; the mean (95% CI) change in [PO<sub>4</sub>] in modified vs. standard arm was 0.01 (-0.24,0.21),  $p = 0.91$ . The mean (sd) difference in follow-up [K] -baseline [K] in the modified and standard arms was 0.01 (0.7) and 0.09 (0.6) mmol/L respectively; the mean (95% CI) change in [K<sup>+</sup>] modified v standard was -0.07(-0.23,0.38),  $p = 0.63$ . C terminal FGF23 (n=27) was not significantly different. Limitations of this study include its modest sample size and limited intervention period.

**Conclusion:** The modified renal diet was well tolerated and was associated with similar [P] control but with a wider food choice and greater fiber intake than the standard diet.

## No.45

### **Title: Hypophosphatemia in patients with Anorexia Nervosa during refeeding.**

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**Introduction:** Refeeding syndrome (RFS) is a potentially life threatening physiologic condition that occurs in seriously malnourished patients after the start of nutritional therapy. Patients with Anorexia Nervosa (AN) admitted to hospital for refeeding are at risk of RFS. Hypophosphatemia is the most commonly reported symptom of RFS, in recent years a number of trials have found prophylactic administration of phosphate (500mg) for patients at risk of RFS to be effective to prevent hypophosphatemia <sup>1</sup>. The aim of this audit was to review the phosphate levels of patients admitted with AN for refeeding and to establish if prophylactic phosphate should be used in the Eating Disorder Unit (EDU) in St Vincent's University Hospital (SVUH).

**Methods:** A retrospective review was undertaken of patients with a diagnosis of AN admitted medically to SVUH or to the EDU in SVUH between 2016-2017. Medical records, laboratory results and dietetic records were reviewed to collect information on baseline body mass index (BMI), intake for previous 5 days, recent weight loss and route of nutritional therapy. Phosphate levels were recorded on admission and day 2 after initiation of nutritional therapy, the normal range in SVUH is 0.8 to 1.5 mmol/L.

**Results:** Data was collected on 23 patients, all of which were classified as high risk of RFS. Five patients commenced on Nasogastric feeding (NG) providing 10-15 kcals/kg with oral diet and 18 patients had a dietetic devised meal plan with oral nutritional supplements (ONS). BMI ranged from 9.9 to 16.6 kg/m<sup>2</sup>. At admission only 2 patients had a low phosphate levels. No patient received prophylactic phosphate on admission. On day 2 of nutritional therapy, 35% (8 patients) developed hypophosphatemia. Three of the 5 patients being NG fed developed hypophosphatemia (0.45-0.76mmol/l). In the oral diet group hypophosphatemia occurred in 5 patients (28%) (0.24-0.67mmol/L). Replacement occurred as per SVUH protocol with IV replacement with levels less than 0.3mmol/L.

**Conclusion:** Hypophosphatemia is common in AN patients admitted for nutritional therapy in SVUH, particularly patients receiving NG feeding. Prophylactic phosphate replacement is not standard practice in SVUH. Due to the emerging evidence supporting the role of prophylactic phosphate and the occurrence of hypophosphatemia still occurring in our patient group supplementation of phosphate should be considered in our high risk AN patients for refeeding.

<sup>1</sup>Friedli et al., (2018) Management and Prevention of refeeding syndrome in medical inpatients; An evidence- based and consensus supported algorithm. Nutrition 47; 13-20.

## No.46

### **Title: Fasting events and use of compensatory feeding in an intensive care unit**

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**Introduction/Background:** Many factors contribute to incomplete nutrition delivery in the critically ill. Nutrition is interrupted up to 7 hours per patient per day in the ICU<sup>1</sup>. While some interruptions are unavoidable, many are avoidable or unnecessarily long. One strategy is to employ compensatory feeding i.e. reactively increase hourly feeding infusion rate after a feed interruption for a set period of time to compensate or partly compensate for feed missed during the interruption. The aim of this study was to investigate the incidence of prolonged fasting (defined as fasting >6 hours) in an ICU with 18 beds; whether it was deemed appropriate to use compensatory feeding by the ICU dietitian and medical team; and if not used, what the key barriers to use of compensatory feeding were.

**Methods:** Data on prolonged fasting events was collected over 50 consecutive days on tertiary referral university hospital mixed medical and surgical ICU. Data was collected on number of prolonged fasting events, reason for fasting events (to be reported at a later date); whether compensatory feeding was employed or not and reason(s) why compensatory feeding was not employed.

**Results:** There was a mean of 16 patients on the ICU per day of the study period, equating to 779 single patient days. There were 95 prolonged fasting events, or 1.9 events on the ICU per day. No patient had more than one prolonged fasting event per day therefore 1.9 patients (12%) fasted >6 hours on any day. A decision was made by the ICU dietitian in conjunction with the critical care medical team to use compensatory feeding in 33 of the 95 events (35%). In 62 of the events (65%) a decision was made not to use compensatory feeding. Where compensatory feeding was not used there were 92 barriers to its use. Barriers fell into 12 categories. The most commonly occurring barrier was GI intolerance (29%), followed by respiratory status (14%), haemodynamic instability (13%), hyperglycaemia (9%) and limitations due to PN use e.g. PN being established/PN already at maximum bag volume rate (8%). Other reasons were risk associated with no dietetic monitoring over the weekend, patient not yet established at target feed rate, patient at risk of refeeding syndrome, patient transitioning to po diet or on po diet alone, volume restriction, end of life care commencing and hyperkalaemia.

**Discussion/Conclusion:** Compensatory feeding is a useful strategy to improve delivery of nutrition in some ICU patients but is not suitable for all fasting events. Careful patient selection by the ICU dietitian is required to avoid potential harm.

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**No.47**

**Title: Exploring the feasibility of a combined package of care for patients undergoing neo-adjuvant chemotherapy for pancreatic cancer: The FEED Study (a Fish oil supplement, pancreatic Enzyme supplement, Exercise advice and individualised Dietary counselling).**

Oonagh Griffin<sup>1 2</sup>, Sinead Duggan<sup>1</sup>, David Fennelly<sup>3</sup>, Raymond Mc Dermott<sup>3</sup>, Justin Geoghegan<sup>2</sup> & Kevin Conlon<sup>1 2</sup>.

(Abstract not available)

**Title: Determinants of quality of life in patients with incurable cancer: an international data repository analysis.**

**Authors:** Louise Daly<sup>1</sup>, Ross Dolan<sup>2</sup>, DC McMillan<sup>2</sup>, Éadaoin Ní Bhuachalla<sup>1</sup>, Wei Sim<sup>2</sup>, Derek Power<sup>3</sup>, Marie Fallon<sup>4</sup>; Samantha Cushen<sup>1</sup>, Claribel Simmons<sup>4</sup>, BJ Laird<sup>4\*\*</sup> and Aoife Ryan<sup>1\*\*</sup>

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**Background:** Optimising quality of life (QoL) remains the central tenet of care in patients with incurable cancer, however determinants of QoL are not clear. The aim of this study was to examine which factors influence QoL in patients with incurable cancer.

**Methods:** A prospective study of adult patients with advanced cancer was conducted in both Cork and Glasgow. Data collected included: patient demographics, performance status (ECOG-PS), nutritional parameters [% weight loss (%WL)] and body composition assessed using computed tomography images (skeletal muscle index (SMI) and skeletal muscle attenuation (MA)), inflammatory markers [C-reactive protein (CRP) and albumin] and QoL (EORTC QLQ-C30). The relationship between these parameters and QoL was assessed using the Spearman rank correlation coefficient ( $\rho$ ) and multivariate logistic regression.

**Results:** 1027 patients were included in the study (51% male, median age: 66 years). Gastrointestinal cancer was most prevalent (40%) and 87% of had metastatic disease. ECOG-PS, CRP and %WL were significantly correlated with deteriorating QoL functional and symptom scales (all  $p < 0.001$ ). On multivariate regression analysis, ECOG-PS stage 3-4 [OR 14.97 (95% CI:7.0-31.9)], CRP >10 mg/L [OR 1.61 (95% CI:1.11-2.33)], >10% WL [OR 2.92 (95% CI:1.77-4.84)] and cancer site lung [OR 1.77 (95% CI:1.18-2.66)] were independently associated with overall summary QoL score below the mean (<73.8). In a subset of patients with body composition analysis ( $n=428$ ), muscle parameters correlated with domains of QoL functional and symptom scales to a small effect ( $p < .29$ ), but on multivariate analysis, neither sarcopenia nor low MA predicted QoL.

**Conclusion:** ECOG-PS, systemic inflammation and %WL are independent predictors of poorer QoL in patients with advanced cancer. Determining early predictors of poor QoL may allow the identification of patients who may benefit from early referral to palliative and supportive care, which has been shown to improve QoL.

## No.49

### **Title: The BMI adjusted weight loss grading system is associated with poorer quality of life and reduced survival in patients with incurable cancer: results of an international study.**

**Authors:** Aoife M Ryan<sup>1</sup>, Louise Daly<sup>1</sup>, Ross Dolan<sup>2</sup>, Donald C McMillan<sup>2</sup>, Éadaoin Ní Bhuachalla<sup>1</sup>, Wei Sim<sup>2</sup>, Derek Power<sup>3</sup>, Marie Fallon<sup>4</sup>, Samantha Cushen<sup>1</sup>, Claribel Simmons<sup>4</sup>, BJ Laird<sup>4</sup>

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**Background:** The body mass index (BMI) adjusted weight loss grading system (WLGS) has been shown to be associated with reduced survival. However, its impact on QoL has not been established. The aim of this study was to assess the relationship between this WLGS and QoL in patients with advanced cancer.

**Methods:** A prospective study of adult patients with advanced cancer was conducted at two international sites. Data collected included patient demographics, performance status (ECOG PS), and nutritional parameters [BMI, % Weight loss (WL)]. Patients were categorised according to the BMI-adjusted WLGS into one of five distinct WL grades (grades 0-4). QoL was collected using the European Organization for the Research and Treatment of Cancer QoL Questionnaire-C30 [EORTC QLQ-C30]. Analysis of variance and multivariate logistic regression analyses were used to assess the relationship between the WLGS and QoL scores. Overall survival (OS) was assessed using Kaplan-Meier curve and Cox proportional hazard models.

**Results:** 1027 patients were included in the study [51% male, median age: 66 years]. Gastrointestinal cancer was most prevalent (40%) and 87% of patients had metastatic disease. Half (56%) of patients had a WL grade of 0-1, while 15%, 19% and 11% had WL grades of 2, 3 and 4, respectively. Increasing weight loss grades were significantly associated with poorer QoL functioning and symptoms scales (all  $p < 0.05$ ). Physical, role and emotional functioning decreased by a median of >20 points between WL grade 0 and WL grade 4, while appetite loss, pain, dyspnoea and fatigue increased by a median score >20 points, indicative of a definite clinical significant difference. Increasing WL grades were associated with deteriorating QoL summary score. WL grade 2, 3 and 4 were independently associated with a QoL summary score below the median (<77.7) [OR 1.69,  $p = 0.034$ ; OR:2.06,  $p = 0.001$ ; OR 4.29,  $p < 0.001$ , respectively]. Increasing WL grades were associated with OS; median OS decreased from 16.6 months (95% CI: 13.6-19.6) in WL grade 0 to 5.4 months (95% CI:3.9-6.8) in WL grade 4 ( $p < 0.001$ ). On multivariate analysis, WL grade 3 and 4 remained independently associated with reduced OS [HR: 1.54 (95% CI: 1.22-1.93),  $p < 0.001$  and HR: 1.87 (95% CI: 1.42-2.45),  $p < 0.001$ , respectively].

**Conclusion:** Our findings support that the WLGS is useful in identifying patients at risk of poor QoL which deteriorates with increasing WL grades. WL grade 4 carries a particularly poor prognosis and increased symptom burden. Identification and early referral to palliative care services may benefit these patients.

## No.50

### **Title: Loss of subcutaneous adipose tissue mass during systemic chemotherapy predicts poor survival in patients with Colorectal Cancer**

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**Background:** Obesity is an established risk factor for colorectal cancer (CRC), however little is known about changes in body composition during chemotherapy and its impact on survival.

**Methods:** A prospective study of adult CRC patients undergoing chemotherapy between 2012-2016 was conducted. Longitudinal changes in body composition were examined using computed tomography (CT) images at two timepoints (interval 7 months IQR: 5-9 months) using paired t-tests. Sarcopenia and low muscle attenuation (MA) were defined using published cut-offs. Cox proportional-hazards models were used to estimate mortality hazard ratios.

**Results:** 227 patients were recruited (67% male, mean age 63 years) and 53% were undergoing chemotherapy with a curative intent. At baseline, 4% were underweight (BMI <20 kg/m<sup>2</sup>), 36% had a normal BMI, and 60% were overweight/obese. Despite this, 39% had cancer cachexia, 33% were sarcopenic and 43% had low MA. Neither BMI, sarcopenia, sarcopenic obesity, low MA nor cachexia at baseline predicted survival. Longitudinal analysis ( $n=193$ ) (over 200 days) revealed significant muscle loss (3.7%,  $p=0.001$ ) and gains in subcutaneous and visceral fat (7.6%,  $p=0.029$  and 10.6%,  $p=0.016$  respectively). When adjusted for known prognostic covariates, total fat loss, and more specifically loss of subcutaneous fat (Q1: loss >5%) was independently associated with poorer survival [HR:3.2 (95% CI: 1.4–7.1),  $p=0.006$ ]. Median survival in the subcutaneous fat losing group (Q1) was 20.5 months while median survival in the fat gaining group (Q4: gain >9%) was significantly longer (log rank  $p<0.001$ ). Median survival for Q4 has not been reached (median follow-up: 57 months). On multivariate analysis, patients who lost >2% total fat had poorer overall survival [HR:1.93 (95% CI: 1.07–3.49),  $p=0.029$ ].

**Conclusion:** Loss of fat mass, specifically subcutaneous fat during chemotherapy is prognostic of reduced survival, while a gain of fat mass was associated with improved survival. Further work is required to elucidate the impact of concurrent changes in muscle and adipose tissue masses and the potential role of nutrition support in these changes.

## No.51

### **Title: Perceptions on Integrating Nutrition into Oncology Care by Oncology Providers and Adult Cancer Survivors**

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**INTRODUCTION:** Cancer patients experience many treatment side-effects that impact on nutritional intake.<sup>1,2</sup> Cancer survivors have been shown to have poor dietary quality and often battle with unintentional weight loss or weight gain.<sup>3,4</sup> Nutrition care plays a critical role in improving the long-term health of cancer patients and survivors; and yet it has not been incorporated as a standard component of the current delivery model of outpatient oncology care.<sup>6</sup> The aim of this study was to assess perceptions on strategies to integrating nutrition into oncology care from both oncology care providers and cancer survivors.

**METHODS:** A total of 6 focus groups were conducted in July 2018 with 12 oncology providers and 12 cancer survivors in the United States. Participants were asked about their perceptions on the role of nutrition in survivors' health, the appropriate components of nutrition care for cancer patients, and strategies to integrate nutrition care into the current delivery model of outpatient oncology care. The focus groups were recorded and transcribed verbatim. Based on the research aims and the questions asked during the focus groups a coding framework was developed. This was inductively refined based on the focus groups and the transcripts were coded. The coded data was then assessed to identify themes.

**RESULTS:** Four main themes emerged: 1) nutrition is an important component of oncology care. Patients consider nutrition as an important tool to empower themselves with choices to improve their quality of life and long-term health 2) the most appropriate time for providers to talk to patients about nutrition not immediately post diagnosis but rather at the time of development of the treatment plan; 3) Providers reinforcement of the key nutrition messages is critical to improve patients' adherence to nutrition recommendations; 4) both patients and providers desire access to evidence-based nutrition recommendations. Major barriers to integrate nutrition into oncology are the lack of time for providers due to busy practice, and the lack of motivation from providers due to lack of reimbursement.

**CONCLUSION:** Both providers and survivors were interested in and supportive of nutrition being integrated into outpatient oncology care, with appropriate timing and major barriers noted.

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**Title: The potential of diet modification to augment chemotherapeutics**

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**Introduction/Background:** Pharmaceuticals, surgical intervention and radiotherapy currently provide the mainstay in the treatment of cancer. None are without treatment complications and side effects. The search for the next generation of medicines that are more selective and tolerable continues.

Ireland has a diverse flora of foods, both wild and cultivated, including plant, mushroom and seaweed. Foods contain a host of different bioactive compounds and many wild foods remain underutilised. This pilot study evaluated extracts from wild and mainstream foods for their potential to contain novel alternative anti-cancer agents. The study also evaluated the potential of food extracts to affect the performance of some mainstream chemotherapeutic agents.

**Methodology:** Human Leukaemia cells (HL60), prostate cancer cells (PC3) and colon cancer cells (CACO2) were maintained in regular cell culture conditions with the exception that cells were maintained at 5% Oxygen to mimic in vivo oxygen availability. Cells were grown in the presence and absence of extracts from a number of Irish plants, mushrooms and seaweeds as well as some common vegetables. Cells then received either Chlorambucil, Ibrutinib or sham (control) and were returned to the incubator for 24 hours before being analysed for cell viability using both the MTT assay and Real Time Cell Analysis.

**Results/Conclusion:** Preliminary data indicates that several food extracts show significant toxicity against cancer cells and more interestingly have the potential to augment the toxicity of mainstream chemotherapeutics. Further work is required to complete the pilot study to include the evaluation of a wider range of extracts and complete testing of human colon cancer derived cells (CACO2).

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## No.53

### Title: Taste and smell abnormalities in cancer, a pooled analysis

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**Introduction:** Taste and smell abnormalities (TSA) occur in all cancer stages and affect nutritional intake and quality of life (QoL). Previous research is limited by small sample sizes, varied assessment methods and cancer treatment focus. TSA in treatment-naïve and advanced cancer groups are under studied and needs further investigation. The aim of this study was to combine three study databases with identical methodologies to investigate TSA in treatment-naïve and advanced cancer. Determine associations between TSA and malnutrition risk, nutritional impact symptoms (NIS) and QoL.

**Methods:** Study datasets were pooled and analysed (Table 1)

Table 1: Study Cohorts and Assessment Types

Disease stage	Subjective TSA Assessment	Objective TSA Assessment	abPG-SGA*
Treatment-naïve (Study A)	40	-	40
Treatment-naïve (Study B)	30	30	30
Advanced Cancer (Study C)	30	30	30
Total	100	60	100

\* Abridged Patient Generated Subjective Global Assessment

**Results:** Combined dataset had 100 patients (66 females). All had subjective assessment and abPG-SGA. Sixty had objective TSA tests. Mean age: 62. Median ECOG: 1 (range 0-3). TSA prevalence was 76% but depends on assessment type. The most common abnormalities were persistent bad taste (52%), stronger or weaker perception of taste (48%) and smell (30%). Sweet acuity was most commonly stronger (24%) and salt mostly weaker (14%). TSA severity correlated with lower QoL ( $r = .451$ ,  $p < 0.01$ ). Over half (64%) were at malnutrition risk. TSA were significantly associated with NIS (dry mouth, early satiety, fatigue, lack of appetite), malnutrition risk and reduced intake.

**Conclusions:** TSA prevalence was high, but varied by assessment method. Over half of participants had persistent bad taste. Those with TSA were more likely to have NIS, be at malnutrition risk and eat less. Pooled analysis yielded significant associations between TSA and NIS, malnutrition risk and reduced intake, which were not observed in individual studies.

**Title: Dietary intakes, physical activity levels and the incidence of the Metabolic Syndrome among a cohort of patients in the National Barrett's Registry at St James's Hospital**

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**Background:** Barrett's Oesophagus (BO) is the only known precursor lesion of oesophageal adenocarcinoma (OAC). While gastro-oesophageal reflux (GORD) is accepted as the primary etiological factor for BO, research has highlighted a burgeoning role for obesity, dietary intake (DI), physical activity (PA) and the presence of the metabolic syndrome (MetS) in the development of Barrett's Oesophagus (BO) and progression to oesophageal adenocarcinoma (OAC).

**Methods-Design/Aim:** A cross-sectional, observational study aiming to explore the anthropometric, metabolic, DI and PA profiles of a cohort of BO patients under surveillance. These profiles were then compared to those of the general Irish population, generated by the SLAN study from 2007<sup>1</sup>. A specific objective of the study was to investigate the presence of a correlation between MetS and the pathological extent of BO.

**Methods-Setting/Subjects:** Endoscopy outpatient clinics in St James's Hospital (SJH), Dublin, Ireland. Over a six week period, a total of 30 subjects were recruited while awaiting endoscopy in SHJ.

**Results:** There was a high prevalence of overweight (n=18, 60%) and obesity (n=8, 26.7%) in this cohort, when subjects were categorised on the basis of Body Mass Index (BMI). However, when subjects were classified relative to waist circumference (WC), there was a greater proportion of obese subjects (n=25, 83.3%). The incidence of MetS in this cohort (n=6, 35%) is higher than that of the general population (21.4%). No statistically significant association was found between MetS and the pathological degree of BO ( $p>0.05$ ). A statistically significant association was found between meat and fish intakes and the presence of MetS ( $p = 0.013$ ). Energy intakes were higher among obese individuals and among individuals with MetS. Dietary Quality Scores (DQS) were calculated for each subject. When the cohort was separated into two groups relative to the median DQS, a greater proportion of the cohort achieved a high DQS (n=18, 58.1%) than a low DQS (n=12, 38.7%). There were markedly high intakes of red and processed meat (RPM) and low intakes of fruit and vegetables (FV) among the cohort. Overall nutrient intakes of the cohort were similar to those of the general Irish population, but vitamin D intakes were particularly low in both cohorts. Additionally, both cohorts consumed excess amounts of discretionary foods. The proportion of subjects reporting low level of PA were similar between the present cohort and the SLAN cohort, while almost half of the present cohort (n=14, 46.7%) reported high PA levels, compared to almost a quarter of the SLAN cohort.

**Conclusions:** This study indicates poor awareness of cancer prevention guidelines among this cohort of BO patients, evidenced by a high prevalence of obesity and MetS, and poor habitual dietary patterns among this cohort, compared to the general Irish population. As such, BO may represent a 'teachable moment' i.e.an opportunity for intervention in the form of dietary and lifestyle counselling in the outpatient setting, since no such service is currently available.

**References**<sup>1</sup> Harrington et al. SLÁN 2007: Department of Health and Children; 2008.

## No.55

### **Title: Investigating whether consuming meals in a dining room impacts patients' mood, level of interaction, and subsequent nutrient intake in a stroke rehabilitation ward.**

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**Introduction:** Malnutrition is evident in hospitals<sup>1</sup> and stroke patients are at increased risk<sup>2</sup>. Protected mealtimes may help increase nutrient intake especially when patients interact and enjoy the dining room atmosphere.

**Methods:** This was a randomised cross-sectional study of 20 patients, assessing mealtime consumption at lunchtime in the dining room compared to at the bedside. Patients' meals were weighed before and after consumption as well as taking the estimated percentage consumed. Patients' interaction was observed and noted using a modified case report form. The Hammond depression scale was used to score patients' mood. Patient and staff satisfaction surveys were completed at the end of the study period.

**Results:** There was no significant difference in protein and energy consumption in the dining room (16.4g protein and 379.2kcal) compared to at the bedside (13.2g protein and 333.8kcal),  $p=0.160$  and  $p=0.110$  respectively. Interaction was higher in the dining room. The percentage mealtime consumption increased the more interactive a patient was from a mean of 74.36% in less interactive patients to 97.50% in highly interactive patients ( $p=0.193$ ). There was no significant association between depression score and mealtime consumption. 74% of patients were positive about the dining room experience and 73.69% preferred eating in the dining room.

**Conclusion:** Further studies are required to explore how intake can be improved among stroke rehabilitation patients.

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## No.56

### **Title: Investigating how communal dining during protected mealtimes impacts food and nutrient intakes as well as the level of safety of patient's in a stroke rehabilitation ward.**

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**Introduction:** Consequences of stroke often result in additional medical requirements in terms of nutrition and food safety. Stroke patients are often susceptible to malnutrition and research has found a positive correlation between higher nutrient intakes and a communal dining environment. Protected mealtimes is a universal initiative used in many hospitals to encourage higher intakes and social interaction among patients (without interruptions of family and staff). Modified textured diets are common among stroke patients who suffer from dysphasia and hope to reduce incidence of aspiration and choking, as well as sustain adequate nutrition and hydration.

**Methods:** This cross-sectional study of 20 patients took place on the stroke rehabilitation ward in St. James's Hospital, Dublin, Ireland. Both qualitative and quantitative approaches were used throughout. Food and nutrient intakes were measured by weighing foods pre and post each meal, with validated estimates taken of each food component consumed. Levels of safety were analysed using observational measures and included analysis of meal set-up, food and fluid consistency as well as feeding assistance. Surveys were given to patients to receive a greater insight into patients' perception of a communal dining experience.

**Results:** There was no significant difference between energy intakes at the dining room (333.80kcal) and bedside (379.24kcal),  $p$  value = 0.160. Overall patients ate a high percentage of their meal in each location, 86.42% and 88.26% respectively ( $p$  value = 0.728). Protected mealtimes were better adhered to at the dining room, with significantly fewer staff disruptions, ( $p$  value = 0.031). Meal set-up assistance was also higher in the dining room, with all patients receiving assistance required in the dining room but not at the bedside (40% of patients did not receive set-up assistance at the bedside). There was no reduction in feeding assistance in the dining room (100% in both locations), however there was a time delay in receiving assistance in the dining room.

**Conclusions:** Almost  $\frac{3}{4}$  of all patients had a preference for the dining room. The majority of patients (78.95%) enjoyed interacting with others. The results from this study support the objectives of protected mealtimes, as the dining room presented fewer disruptions. Although there was a delay in feeding assistance in the dining room, a larger number of patients in the one area (i.e. in one dining room) could facilitate staff in assisting more patients in a shorter time period. Decoration of the ward dining room (e.g. artwork on the wall, flowers on table) may encourage a greater number of patients to eat in the dining room, creating a more "home-like" atmosphere, increasing rate of assistance and ultimately resulting in a more positive experience for stroke patients in long-term care.

## No.57

### **Title: Does milled linseed supplementation improve bowel health in older adults living in long term care?**

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**Introduction:** Constipation is common disorder among older adults living in Long Term Care (LTC). Milled linseed has a mild laxative effect and could be a potential solution for the treatment of constipation and reduce the reliance on laxatives in older adults. The aim of this project was to investigate the effectiveness of milled linseed use in the prevention and treatment of constipation in older adults living in LTC.

**Methods:** Twenty-five older adults living in LTC in St Mary's hospital completed a six week treatment period for the purposes of a quantitative clinical audit. All participants were given 10-20g of milled linseed in their breakfast cereals while they consumed their normal diet from the hospital menu. Milled linseed compliance, fluid intake, stool frequency, stool consistency and laxative use were monitored for each participant.

**Results:** Stool frequency increased with milled linseed treatment to  $4.8 \pm 1.9$  /week from a baseline of  $4.0 \pm 1.5$  /week however this was not statistically significant ( $p=0.069$ ). Stool consistency remained the same (Type 4 Bristol Stool Chart) during the audit ( $p=0.417$ ). No change was observed in laxative use. Baseline fibre intake was 11.8g/d, this increased to 14.2-16.5g/d with the addition of the milled linseed. Total dietary fibre intake remained suboptimal despite the addition of milled linseed to the diet catered in LTC.

**Conclusion:** Milled linseed resulted in a small increase stool frequency in older adults living in LTC. Although the increase in stool frequency was not statistically significant it may be clinically relevant. Further research is needed to confirm whether milled linseed may represent an effective strategy to reduce constipation and decrease laxative use in older adults over a more extended period.

**Title: Evaluation of the effect of blue plates on the nutritional intake in older persons in an acute setting**

**Authors:** A O'Donoghue<sup>1,2</sup>, M O'Sullivan<sup>2</sup>, T Waldron<sup>3</sup>, A McMorrow<sup>3</sup>, C O'Keeffe<sup>3</sup>, N Cole<sup>3</sup>, S Carroll<sup>3</sup>, C Fennelly<sup>3</sup>, A Edwards<sup>2,3</sup>, J Reilly<sup>3</sup>, B Doherty<sup>3</sup>, T O'Brien<sup>3</sup>

<sup>1</sup>Dublin Institute of Technology, <sup>2</sup> Trinity College Dublin, <sup>3</sup> St James's Hospital Dublin

**Introduction:** Ageing is often associated with an increased risk of malnutrition and this risk increases in hospitalised elderly patients and those with a cognitive impairment. Several environmental changes to increase nutritional intake in the elderly have been investigated however there are few studies that investigate the use of contrast crockery during mealtimes to improve intake. The rationale for this approach is that visual impairments, including decreased contrast sensitivity, are more prevalent in elderly and those with cognitive impairments. The aims of this study are to investigate if there is an association between the use of contrasting blue crockery and nutritional intake in the elderly in an acute setting with subgroup analysis of those with cognitive impairment.

**Methods:** A total of 62 patients admitted to an acute ward were screened for inclusion. 42 were enrolled in the study and 35 patients completed the requirement of a minimum of 1 day on each colour of plate. Demographic and health information was gathered as well as cognitive status through MMSE and 4AT. Meals were served on blue and white plates on alternating days for each person during the main meal of the day. Weights and photographs were taken of each meal before and after being given to the patient.

**Results:** Half (48.5%) of the participants were at risk of malnutrition. 60% of the participants were deemed to have a cognitive impairment. The mean % of food intake, regardless of plate colour was 60.1 % of the meal. No significant difference was observed between the food intake from a white vs a blue in % consumed ( $p=0.879$ ), grams consumed ( $p=0.701$ ), kcal consumed ( $p=0.706$ ) and protein consumed ( $p=0.932$ ). Similarly, when compared in those with and without cognitive impairment there was no significant difference between % consumed ( $p=0.461$ ), grams consumed ( $p=0.759$ ), kcal consumed ( $p=0.492$ ) and protein consumed ( $p=0.778$ ).

**Conclusion:** Associations between the use of contrast crockery to improve intake in an acute setting were not found in this study on overall analysis or subgroup analysis by cognitive impairment. The results of this study differ to previous research and so further research to not only determine if there is any association between the use of contrasting crockery and intake but also to find the most cost-effective intervention to reduce malnutrition in the elderly hospital setting is required.

**Title: Nutrition Support Outcome Measures Post Dietetic Intervention in an Age Related Rehabilitation Setting**

**Authors:** Shauna Clarke, Senior Dietitian, Peamount Healthcare

**Introduction/Background:** In a landscape of healthcare resources that are coming under pressure to do more with less, it is imperative that we can demonstrate the impact and worth of dietetic interventions. This is an audit of nutrition support intervention for patients referred for malnutrition in an age related rehabilitation unit which compares clinical outcome measures on admission and discharge.

**Methods:**

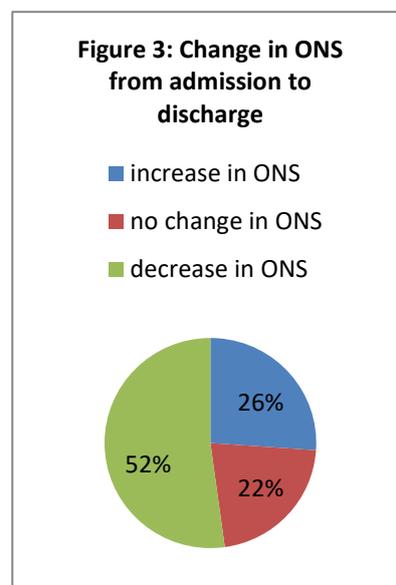
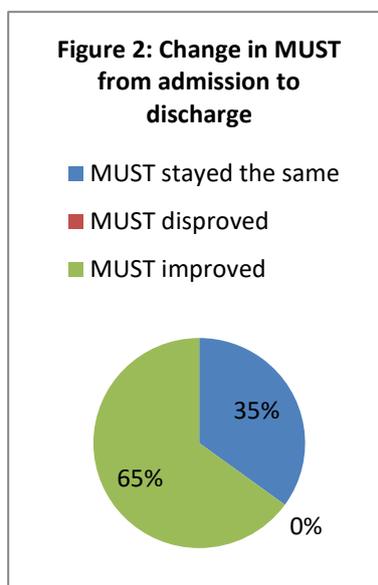
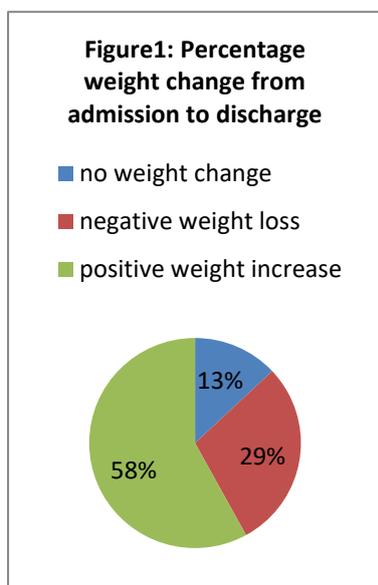
This abstract contains 6 months of data with a total of 32 patients. Demographic details such as age, length of stay and diagnosis were collected. Clinical outcome measures specific to nutrition support were collected on admission and discharge. This included: percentage weight change, MUST score and amount of oral nutritional supplements. Exclusion criteria: patients on enteral tube feeding and those not requiring a nutrition support intervention during their stay.

65-79 yrs	41%
80+ yrs	59%

Stroke	38%
Ortho	28%
Medical	34%

**Results:**

Results to September 2018 - 6 months of data (can be updated with further data on submission of poster, if accepted). The graphs below show the changes in clinical outcome measures from admission to discharge.



**Discussion/Conclusion:** Greater than half of patients seen by the dietitian for nutrition support had a positive weight increase with 65% having an improvement in their MUST score and no patients had a decrease in their MUST score. This suggests that despite a modest average weight change, of 2.4%, 65% had either a significant weight increase and/or moved to a higher BMI category. This paired with a 57% overall reduction in usage of ONS from admission to discharge suggests positive outcomes for patients receiving nutrition support advice from the dietitian. The use of ONS for these patients reduced from 34 bottles to 19.5 bottles per day. This would produce an approximate annual cost saving of €7165 as per GMS price of ONS in the community post discharge.

**Title: Vitamin D deficiency is associated with inflammation in community-dwelling older adults. Findings from the English Longitudinal Study of Ageing**

**AUTHORS:** Antje von der Schulenburg<sup>1,2</sup>, Dr Maria O’Sullivan<sup>2</sup>, Dr Niamh Aspell<sup>2</sup>

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**Introduction:** Ageing is frequently characterised by low-grade inflammation (“inflamm-ageing”), which is considered a predictor of morbidity such as frailty and cardio-vascular disease (CVD). Few studies have investigated the association between circulating vitamin D concentrations and inflammatory markers in older, community-dwelling, generally healthy populations.

**Methods:** Cross-sectional data on serum 25-hydroxyvitamin D (25OHD) concentrations and the inflammatory markers high-sensitive C-reactive Protein (hsCRP), White Blood Cell Count (WBC) and Fibrinogen were obtained from wave 6 of the English Longitudinal Study of Ageing (ELSA). The presence of  $\geq 2$  inflammatory markers in the highest population quartile was defined as a high inflammatory score. After application of qualifying criteria, 4,136 individuals aged  $\geq 60$  years were included in the analysis. A binary logistic regression was used to investigate the associations between vitamin D and inflammatory markers.

**Results:** Odds ratios (ORs) of having raised inflammatory markers were significantly higher for sample members with 25(OH)D concentrations  $< 30$  nmol/L, (vitamin D deficiency) compared to individuals with vitamin D  $\geq 50$  nmol/L (vitamin D adequacy/sufficiency). This association remained significant after adjusting for a wide range of socio-demographic and health- and lifestyle-related factors, including waist circumference.

**Conclusion:** Low concentrations of 25(OH)D were associated with higher levels of inflammation in a cohort of older, community-dwelling, generally healthy adults. Controlled clinical trials are required to establish the potential role of vitamin D in ameliorating age-related inflammation and its effects.

## No.61

### **Title: An investigation into the laxative prescribing practices in an elderly cohort in a long-stay unit**

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**Background:** Constipation is one of the most common complaints among the geriatric population, with a reported prevalence of up to 72%. Constipation may result in significant morbidity, especially among nursing home residents, and is associated with impairment to quality of life. Constipation imparts a significant burden on healthcare systems, from an economic and resource utilisation standpoint. Laxatives are a key component of the management of constipation in the older person, with prescription rates ranging from 50-74% of the older person population. The aim of the present study was to investigate the laxative prescribing practices in a long-term care (LTC) setting and to explore the factors associated with constipation incidence and laxative use in this population.

**Methods:** A retrospective audit of the medical records of an older adult (aged over 65 years) long-stay unit in Dublin, Ireland was conducted. Data extracted from medical charts, nursing records and drug kardex included: demographic, anthropometric and dietary data, measures of cognitive and functional status, bowel activity and laxatives prescribed for regular use. Use and dosage of laxatives were recorded by means of the Anatomical Therapeutic Chemical (ATC) Classification System at level 5. Constipation was defined as no bowel movements for three days or more and/or difficulty with hard stools (i.e. type one or two on the Bristol Stool Chart [BSC]). Descriptive statistics and binary logistic regression were used to analyse the data. Statistical significance was taken at  $p < 0.05$ .

**Results:** A total of 145 subjects were included in the study, of which 27.6% (n40) were suffering with constipation. Overall, 72.4% (n105) of the residents were female with a mean age of 85.6 years. The mean weight of residents was 62.9kg and the majority (38.6%, n56) had a healthy body mass index (BMI). When compared with non-constipated subjects, constipated residents were more likely to be prescribed Oral Nutritional Supplements (ONS;  $p=0.021$ ) and have a lower Functional Independence Measure (FIM) score ( $p=0.000$ ). Over seven in ten (71.1%, n104) residents had been prescribed at least one laxative for regular use, and almost a third (30.3%, n44) had been prescribed two or more laxatives. Factors associated with laxative prescription included: FIM score ( $p=0.040$ ), gender ( $p=0.006$ ) and type of diet ( $p < 0.001$ ).

**Conclusion:** Constipation and laxative use were common among the geriatric population residing in a Dublin-based nursing home. With over 70% of the population having a laxative prescription, it is clear that the management of constipation through pharmacological therapies is preferred in this cohort. Non-modifiable factors associated with constipation exist in this population, such as age and gender. Therefore, the focus should shift towards the treatment and management of a condition whose presence is, to some degree, inevitable in this group. It is imperative that that therapeutic interventions are well-managed to promote positive patient outcomes.

**Title: Prevalence of sarcopenia and malnutrition in community-dwelling older adults in Ireland**

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**Introduction:** Sarcopenia, the age-related loss of skeletal muscle mass and function, is an independent risk factor for numerous adverse health outcomes. Older adults are at increased risk for chronic malnutrition, a condition that may accelerate the loss of muscle mass and physical function. The aim of this study was to identify the prevalence of sarcopenia and malnutrition among community-dwelling older adults in Ireland for the first time.

**Methods:** In a cross-sectional analysis, 498 community-dwelling adults (age  $78.5 \pm 8.0$  y, body mass index (BMI)  $27.6 \pm 5.1$  kg/m<sup>2</sup>) were assessed. Skeletal muscle mass was measured using bioelectrical impedance analysis, muscle strength via handgrip dynamometry and physical performance via the Short Physical Performance Battery. Sarcopenia was defined according to the European Working Group on Sarcopenia in Older People (EWGSOP) criteria, Malnutrition risk was assessed using the Malnutrition Universal Screening Tool (MUST).

**Results:** The prevalence of sarcopenia was 9.0%. Of those that did not meet the EWGSOP definition for sarcopenia, 2.9% were pre-sarcopenic (low muscle mass without a decrement in strength or physical performance) and 61.7% had low strength and/or physical performance in the absence of low muscle mass. 10.0% of participants were classified as “at risk” of malnutrition. Among participants with sarcopenia, 10% were at medium risk and 29% were at high risk of malnutrition. BMI within the underweight and obese categories were associated with higher risk of sarcopenia ( $p < 0.05$ ).

**Conclusion:** Sarcopenia is prevalent among community-dwelling older adults living in Ireland and, even among those who did not meet the EWGSOP definition for sarcopenia or pre-sarcopenia, decrements in strength and physical function are common. Our data indicate that underweight and obesity are risk factors for sarcopenia, however the MUST tool has low predictive value for the identification of sarcopenia.

## No.63

### **Title: A Novel 12 Week, Dietitian-Led Nutrition Curriculum Beneficially Modulates Nutrition Behavior in Older Adults Attending Community Cardiac/Pulmonary Rehabilitation**

#### **AUTHORS:**

Conor P Kerley

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**Introduction:** Community based, cardiac and pulmonary rehabilitation programs are designed to be multi-disciplinary but often focus on exercise. However, improved nutritional behaviours are documented to improve cardiac and pulmonary outcomes. The aim here was to examine the effect of a novel 12 week, dietitian-led nutrition curriculum on dietary change in older adults participating in community based, cardiac and pulmonary rehabilitation programs

**Methods:** Twelve short (~10min) weekly talks on diverse nutritional topics delivered by a registered dietitian (CPK). Topics were aimed to be most relevant for older adults, those with chronic cardiac/pulmonary and those exercising regularly. Demographics, attitude to the talks and dietary intake were recorded before and after the pilot intervention.

**Results:** One hundred and twelve (83 male) attended >75% of talks. The weekly talks were rated as excellent by 38, very good by 52 and good by 13 subjects. Further, weekly talks were rated as very useful, quite useful or useful by 33, 37 and 34 subjects as well as very practical, quite practical or practical by 66, 35 and 6 subjects respectively. One hundred percent of respondents would recommend the 'curriculum' to a friend. Eighty-seven of 102 subjects reported having changed their dietary habits since the beginning of the curriculum. The largest reported changes were increased consumption of plant protein (n=37), fruit and vegetables (n=35) and wholegrains (n=11).

**Conclusion:** Nutrition has a major influence on incidence and progression of cardiorespiratory disorders. However, work from our group and others demonstrates both suboptimal nutritional knowledge and behaviours in these cohorts. Rehabilitation programs offer a unique and promising opportunity to provide targeted, evidence-based nutritional advice and potentially modify nutritional behaviours.

**Title: A Single-Blind, Placebo-Controlled, 3-Arm Cross-Over Trial in Humans of Novel Dairy-Derived Peptides with *in vivo* Ghrelinergic Effects**

**Authors:** Samantha J Cushen<sup>1,4</sup>, Erin S Sullivan<sup>1,4</sup>, Tracey Kelly<sup>1,4</sup>, Louise E Daly<sup>1,4</sup>, Éadaoin B Ní Bhuachalla<sup>1,4</sup>, Ken Howick<sup>2,4</sup>, Harriet Schellekens<sup>3,4</sup>, John F Cryan<sup>3,4</sup>, Brendan T Griffin<sup>2,4</sup>, Darren Dahly<sup>4</sup>, Aoife M Ryan<sup>1,4</sup>.

**Affiliation(s):**<sup>1</sup>School of Food and Nutritional Sciences, College of Science, Engineering and Food Science, University College Cork; <sup>2</sup>School of Pharmacy, University College Cork; <sup>3</sup>Department of Neuroanatomy, University College Cork; <sup>4</sup>Food for Health Ireland.

**Background:** Methods to stimulate appetite in the sick or elderly remains a challenge with few safe therapeutic options. Ghrelin is an orexigenic hormone, increasing appetite and subsequent food intake. It has received considerable attention as a therapeutic target to stimulate food intake in patients with anorexia however it has to be administered intravenously. As part of Food for Health Ireland (FHI-2), we investigated the effects of two milk-derived bioactive peptides on appetite and energy intake that act as ghrelin mimetics and have been shown to activate ghrelin receptors in mice. The identification of food-grade bioactives with proven orexigenic effects would mark significant progress in the treatment of disease-related malnutrition.

**Methods:** A single-blind, placebo-controlled, 3-arm (placebo, casein bioactive MF1145 and whey bioactive UL-2-141) cross-over trial was conducted in healthy male volunteers. Participants received 26 mg/kg of both the bioactives and placebo. The main outcome measures were weighed energy intake from a set breakfast and *ad libitum* lunch and subjective appetite sensations as assessed by visual analogue scale (VAS). Basal and postprandial levels of total and active ghrelin (AG) were measured. Dietary intakes were analysed using Nutritics software. Statistical analyses were performed in R.

**Results:** 22 male participants (mean age 27 years) were included, average BMI was 24.6 kg/m<sup>2</sup>, (19.8 to 30.2 kg/m<sup>2</sup>). Mean energy and protein intakes at lunch when treated with placebo were 1343 kcal (95% CI: 1215 – 1471 kcal) and 73.6 g (95% CI: 66 – 81 g), respectively. Energy and protein intakes were not significantly different from placebo for either treatment (p=0.918 p=0.319 for UL-2-141 and p=0.889 p=0.959 for MF1145, respectively). Similarly, appetite, hunger and satiety responses on VAS were not significantly different from placebo for either treatment. Active ghrelin peak after lunch on placebo was 653 pg/ml (95% CI: 511 – 794 pg/ml). Treatment with UL-2-141 resulted in 139 pg/ml reduction in post-prandial AG compared to placebo and treatment with MF1145 resulted in 114 pg/ml reduction compared to placebo. This pattern was significant for both treatments (p=0.021 and p=0.045, respectively) however when controlling for fasting AG, the pattern was no longer significant (p=0.590 and p=0.877 respectively). Pre-prandial AG peaks were not significantly different across treatments.

**Conclusion:** While these peptides have previously demonstrated ghrelinergic effects in mice, no effect on appetite or food intake in humans was identified by this study. This may be attributable to the small sample size or low dose. However, since healthy adults are often not in tune with their own physiological hunger, they may not respond strongly to simple physiological modulators and repeating the study in subjects with established anorexia may be prudent.

## No.65

### Title: Can ehealth influence self care treatment practices of the CF patient?

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<sup>c</sup>School of Allied Health, University of Limerick. <sup>d</sup>Dept of Paediatric Respiratory Medicine, UHL. <sup>e</sup>Dept of Respiratory Medicine, UHL.

**Introduction:** Habitual treatment practices for people with cystic fibrosis (CF) remain a continuous burden<sup>1</sup>. Severe risk of microbial cross infection between patients compromises peer sharing of this burden. The CF multidisciplinary team (MDT) are centrally placed to support and educate patients on best practice. CF patient demographic continues to evolve; favouring the millennial adolescent or adult with CF. Education and support mediums to challenge self care and self empowerment should reflect this. University Hospital Limerick (UHL) CF patient feedback highlighted limited practical information to support self care treatment, the majority favouring the concept of education via digital media<sup>2</sup>. **Aim:** To explore the use of eHealth as an educational tool to support self care treatment practices within CF.

**Method:** A steering committee composed of the CF MDT, led by the CF dietitian, evaluated patient education resources. Results from a brain storming meeting focused the development of video education. Patient feedback ranked relevant topics in order of patient preference. Supporting this, the CF MDT collaborated to script, peer review, create, and produce three educational videos – ‘How to manage your enzymes with food’; ‘How to use your AeroBika®’ and ‘Tips and Tricks with your therapies’. Assistance from an outsourced media company, wider hospital departments and national interest group peers were sought. A YouTube channel; UHL CF Centre was created to host the videos for global access; <https://tinyurl.com/y8kkp9sy>. Following ethical approval, an anonymous questionnaire was circulated to CF patients attending UHL to evaluate its effectiveness.

**Results:** Within its first year the YouTube channel recorded 7490 cumulative views. Questionnaire feedback highlighted 80.7% of respondents (n=57) reported the medium of video much easier to understand than written leaflets. After watching the videos, the majority reported more confidence in following their overall treatment plan (77.2%), managing their enzymes with food (71.7%) as well as using and cleaning their AeroBika® (78.1%, 75% resp.). Over 86% of respondents felt more supported by their CF team. At least 74.2% reported they were more likely to engage with CF services if they had any questions about their treatment plan. Near to all respondents, 97%, reported the content were shareable and relevant to people with CF outside of UHL CF centre.

**Conclusion:** For those who choose it, eHealth in the form of video education supports, empowers and guides the self care treatment practices of patients with CF. Patient input and learning styles should be considered when developing educational resources. This project reached final round pre-short listing for the 2017 HSE Health Excellence Awards and the lead author was awarded a certificate of special recognition for supporting and managing the project.

**References** <sup>1</sup>Llorente R.P.A et al, *Journal of Cystic Fibrosis* vol 7 is 5 pp.359-367. <sup>2</sup> Murphy, N. "Patient feedback on how to clean your nebuliser". Unpublished raw data.

## No.66

### **Title: A metabolomic approach to the identification and validation of biomarkers of apple intake.**

**Authors:** Aoife E. McNamara, Orla Prendiville, Lorraine Brennan.

**Introduction:** Assessment of dietary intake is a cornerstone of nutrition research. However traditional dietary assessment methods are subjective and prone to certain well-defined biases (1). Dietary biomarkers are metabolites reflecting the consumption of either a specific food or food group (2) and offer the potential for objective measures of intake. The discovery and validation of dietary biomarkers for specific foods are essential to progressing this field. The objective of the present study was to identify novel biomarkers of apple intake and examine the dose-response relationships in the background of a habitual diet.

**Methods:** Twenty volunteers were recruited to take part in an acute feeding study. Following an overnight fast, participants consumed a large portion of apples (360g) and postprandial urine samples were collected at 2, 4 and 24 hours for metabolomic analysis. Thirty-two volunteers were recruited to take part in a dose-response study. Participants consumed a standardized dinner for four consecutive days for three weeks. Each week a different portion of apples was consumed (low (50g), medium (100g) or high portion (300g)). On the fifth day, following an overnight fast, first void urine samples were collected for analysis by metabolomics. Metabolomic analysis was performed by NMR and data analysis using multivariate statistical approaches. Urinary xylose concentrations were quantified and normalized to osmolality.

**Results:** A total of 17 volunteers completed the acute feeding study and 27 volunteers consumed all three portions of apple in the dose-response study. Analysis of the metabolomics data revealed that xylose was significantly increased following consumption of apple. Time series analysis revealed an increase in xylose concentrations 2 and 4 hours post consumption in comparison to the control food. Assessment of urinary xylose in the dose-response study demonstrated a linear increase with portion size with a correlation of  $r=0.406$  ( $p<0.0001$ ) between intake and xylose concentration. Work is ongoing to examine these relationships in an independent free-living cohort, Irish National Adult Nutrition Survey (NANS) ( $n=565$ ).

**Conclusion:** Xylose increased in urine following apple consumption and exhibited a dose-response relationship. Future work will confirm the relationships in a free-living population and examine the use of such biomarkers to estimate habitual fruit intake.

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2. Gao Q, Praticò G, Scalbert A, Vergères G, Kolehmainen M, Manach C, et al. A scheme for a flexible classification of dietary and health biomarkers. *Genes Nutr.* 2017;12(1):1–15.

**Title: The influence of a novel gene-nutrient interaction on blood pressure and measures of vascular health in apparently healthy adults.**

**Authors:** Rooney M., McNulty H., Hughes C.F., Clements M., Strain J.J. and Ward M. Nutrition Innovation Centre for Food and Health (NICHE), Ulster University, Coleraine, N Ireland.

**Introduction:** Hypertension is the leading cause of preventable, premature mortality, as the primary risk factor for cardiovascular disease (CVD). A common polymorphism, the C677T mutation in the gene encoding the folate metabolising enzyme methylenetetrahydrofolate reductase (MTHFR), affects 10-12% of the UK and Irish population, and is associated with a 24-87% increased risk of hypertension globally<sup>1</sup>. Studies conducted at our centre have demonstrated blood pressure (BP) to be highly responsive to supplementation with riboflavin<sup>1</sup> (which acts as a cofactor for MTHFR) however, the mechanism linking this genetic factor with higher BP is currently unknown. Furthermore, the influence of the gene-nutrient interaction on additional measures of vascular function has not previously been investigated. The aim of this study, therefore, was to investigate BP and endothelial function in generally healthy adults stratified by *MTHFR* 677 genotype and to examine the influence of riboflavin status on these associations.

**Methods:** Individuals aged 18-60 years were recruited from workplaces across Northern Ireland and invited to an appointment where a blood sample was collected for riboflavin biomarker analysis (EGRac). In addition, BP (OMRON, Netherlands) and the pulse pressure waveform (SphygmoCor, Australia) were assessed in addition to the collection of health and lifestyle information, anthropometric measurements and a blood sample

**Results:** Preliminary results from a subset (n=224) of the study cohort indicate that systolic BP is significantly higher in participants with the TT compared to non-TT genotype (129.8mmHg vs. 135.9mmHg, P=0.002). Similarly, augmentation index (AIx; 23.7% vs 20.8%, P=0.047) and augmentation pressure (9.78mmHg vs 7.8mmHg, P=0.03) were significantly greater in those with the TT genotype, compared to controls, indicating poorer vascular health in this genetically at-risk group. Adults with the TT genotype and suboptimal riboflavin status (as indicated by an EGRac ratio of  $\geq 1.27$ ) had significantly higher systolic BP (P<0.001) compared to non-TT counterparts.

**Conclusion:** In this study of apparently healthy adults, individuals with the *MTHFR* 677TT genotype had elevated BP and poorer endothelial function compared to their age-matched controls (non-TT genotype). Furthermore, riboflavin status was an important determinant of blood pressure in adults with the TT genotype. These findings have important implications for public health policy given the high prevalence of hypertension and associated disease risk in our population. .

**References:**

1. McNulty H, Strain JJS, Hughes CF et al. *Mol Aspects Med.* 2017;53:2-9.

## No.68

### Title: **Modifying Eating Behaviour using Technology: The BigO Clinical Feasibility Study**

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Submitted on behalf of members of the H2020 BigO project

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**Background:** Environmental factors including food and physical activity environments and food marketing contribute to unhealthy diets and sedentary behaviours among children. The BigO (Big Data Against Childhood Obesity) project will gather and analyse big data on school children's behaviours and their environments. A clinical arm of the BigO Project will use the technology with an age-matched cohort of children with obesity as part of a mHealth intervention.

**Aims:** To examine, using a randomised feasibility study design, the feasibility and acceptability of proposed protocol for a mHealth RCT with children attending a clinical obesity service in Ireland.

**Methods:** Twenty children and adolescents (9.0-16.9 years) with obesity (BMI  $\geq$ 98th centile) will be recruited within a weight management service at a tertiary healthcare setting. Upon completing informed consent and assent, participants will be registered with the BigO project and assigned study equipment including a smartwatch and Mandometer<sup>®</sup>. myBigO app links physical activity behaviours with environmental indicators and participants also use myBigO app to photograph food and map food marketing images. The Mandometer<sup>®</sup> measures rate of eating and provides training on reducing the rate of eating.

Participants will undergo 2 weeks of baseline tests including anthropometry, rate of eating by Mandometer<sup>®</sup> and physical activity level using a smart-watch and myBigO app. Thereafter participants will be randomised to either: (1) Treatment: Usual clinical care + Mandometer<sup>®</sup> training + myBigO app, *or* (2) Control: Usual clinical care + myBigO app. The primary outcome is change in BMI SDS. Secondary outcomes include rate of eating, food consumption, physical activity levels, quality of life, and technology engagement and usability scores. The randomised feasibility study is being run 'in-miniature' with a shorter treatment period of 4-weeks compared to 4-months proposed for the definitive RCT. Process evaluation parameters for the feasibility study include fidelity with planned protocol, recruitment, reach, randomisation, dose delivered and dose received. Participant evaluation questionnaires, usability surveys, engagement scores, participant demographics, and research notes will be used to inform the process evaluation.

**Results:** The BigO clinical RCT is currently in the feasibility study phase.

**Conclusions:** The outcomes of process evaluation and the efficacy and usability of the Mandometer® and myBigO app among children and adolescents in treatment for obesity in a clinical setting will be reported. Results will be used to inform protocol and procedures for the definitive RCT.

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**No.69**

**Title: Examining covariation between traditional markers of metabolic health and the metabolomic profile.**

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(Abstract not available)

## **Title: Use Of Focus Groups To Assess The Attitudes, Needs And Expectations Of An App For The Management Of Exercise With Type 1 Diabetes**

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**Introduction:** Management of exercise with type 1 diabetes (T1DM) can be problematic for the patient. Also education in this area is challenging for health care professionals due to its complexity and limited time in busy clinics. We used qualitative research to explore whether a smartphone app could be used to educate and inform our patient's in this complex area. Our aim was (1) to gain an insight into individual's experiences of using mobile phone apps and (2) increase our knowledge of their needs and expectations for a smartphone app for the management of exercise with T1DM.

**Methods:** Three focus groups were conducted with people who have T1DM (n=25). Mean age was 38 (SD 11.1) years and mean HbA1c was 7.4 (SD 1.4) %. Audiotapes were used and each focus group were transcribed verbatim. Qualitative analysis of the focus group data was performed using Interpretative Phenomological Analysis.

**Results:** From the themes that emerged there appear to be many frustrations and issues with currently available apps. Previously used apps were found to be burdensome, time consuming, complicated, and the data they received back to be overwhelming. Suggestions that will aid in the design of a T1DM and exercise app included tailoring advice to the individuals based on their profile and data entry, advice in the form of suggestions rather than specific figures, and making the app uncomplicated and user friendly. Participants liked the idea of the app tracking their trends and then predicting and prompting them based on this information.

**Conclusion:** Involving individuals with T1DM early in the design process ensures that our design satisfies the specific requirements of those looking to commence or increase exercise. Designing the app will be challenging due to individual variability and the many factors to consider when exercising with T1DM. However, if designed and developed successfully this will be the first app of its kind to take the needs and opinions of those with T1DM into consideration as well as getting the expertise of clinicians and health care professionals in this complex area.

## No.71

### **Title: Adherence to physical activity recommendations and barriers to physical activity among Irish adults with type 1 diabetes**

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**Introduction:** Information on physical activity (PA) levels and its association with glycaemic control and cardiovascular disease risk is lacking among Irish adults with T1DM. We assessed PA levels in this population and evaluated the relationship between PA, glycated haemoglobin (HbA1c) and cardiovascular risk factors. We also identified the barriers to PA.

**Methods:** Using an observational cross-sectional design, PA was measured objectively over 7 days in 72 patients (34 males) using accelerometry (ActiGraph). Anthropometrical, biochemical and clinical parameters were recorded. Subjectively-reported PA levels were captured using the International Physical Activity Questionnaire (IPAQ). Perceived barriers to PA were assessed using the Barriers to Physical Activity in Diabetes (Type 1) scale. Multiple linear regression models were applied to assess how PA influenced HbA1c and cardiovascular risk factors.

**Results:** Mean age ( $\pm$ SD) was 40.9 ( $\pm$ 12.9) years, diabetes duration was 18 ( $\pm$ 11.6) years and HbA1c was 8.0 ( $\pm$ 1.3)%. Twenty-three (32%) participants exercised to PA recommendations as measured by accelerometry, compared to 69 (97%) participants reporting meeting the recommendations as per the IPAQ. Those meeting recommendations (accelerometry) had a lower HbA1c ( $p=0.001$ ), BMI ( $p=0.032$ ), waist circumference ( $p=0.006$ ) and fat mass ( $p=0.032$ ) and a greater number of hypoglycaemic events ( $p=0.004$ ). Fear of hypoglycaemia was the strongest barrier to PA ( $3.4 \pm 2.0$ ). Other barriers included low fitness levels, weather and loss of control over diabetes.

**Conclusion:** The majority of participants fail to meet PA recommendations; however those that do have healthier cardiovascular risk factor profiles. Participants overestimated their PA level using a subjective measure. Several barriers to PA were identified. Patients with T1DM require support and education to safely improve activity levels.

**Title: A systematic scoping review of interventions to support evidence-based prescribing of oral nutritional supplements in primary care**

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**Introduction/Background:** The clinical implications of malnutrition are considerable and the associated costs are high (e.g. increased morbidity, mortality, healthcare utilisation). Interventions to treat malnutrition include oral nutritional supplements (ONS). It is estimated that between 30-70% of ONS are prescribed without appropriate nutritional assessment. This is not in accordance with prescribing guidelines and has considerable cost implications. The aim of this scoping review is to provide an overview of interventions to support evidence-based ONS prescribing in primary care.

**Methods:** A systematic scoping review was undertaken. PubMed, EMBASE and CINAHL were searched from inception to September 2018. Search terms included malnutrition and ONS. In order to meet inclusion criteria, studies had to: evaluate interventions targeting ONS prescribing in primary care; use a comparative evaluation (e.g. control group, before/after design); be published in the English language. All outcomes for included studies were documented. Two review authors independently screened abstracts and extracted data using a purposefully-designed data extraction form. Results were summarised using narrative synthesis.

**Results:** 3329 records were screened for inclusion and 10 studies were included in the review. All studies involved an uncontrolled before-and-after design. Interventions ranged from audits of ONS prescribing to policy-level changes involving complete transfer of ONS prescribing privileges from general practitioners to dietitians. Post-intervention study results reported improvements in ONS prescribing as measured by reductions in prescribing levels and a number of studies highlighted potential cost savings associated with reductions in inappropriate ONS prescribing.

**Discussion/Conclusion:** This review provides the first detailed overview of interventions aimed at improving evidence-based prescribing of ONS in primary care. A range of interventions has been evaluated to date, most commonly involving dietitians. Reporting of interventions was often poor and use of controlled experimental design was lacking. Future research should attend to rigour during the stages of intervention development, evaluation and reporting in order to generate findings which could serve to inform policy and practice relating to ONS prescribing in primary care.

## No.73

### **Title: What do community-based nurses know about tube feeding in primary care?**

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**Introduction:** Patients on Home Enteral Nutrition (HEN) should be monitored by health professionals with relevant skills and training who are familiar with the procedures and complications of HEN. There are over 2000 adults and children on HEN in Ireland, but only a third have access to a Community Dietitian (CD). In DNCC, CDs trained in HEN support adults on tube feeding but there is no equivalent service for paediatric patients. In the absence of a HEN Dietitian, it is usually the Public Health Nurse or Community Registered General Nurse (PHN/ CRGN) who provide support to this patient group locally.

**Aim:** To assess the knowledge of PHN/ CRGNs in DNCC in the management of HEN, and to explore their self-efficacy in providing this support.

**Methods:** PHN/ CRGNs who enrolled in a HEN training programme facilitated by CDs in DNCC completed 2 questionnaires prior to commencing training. The first asked them to rate their confidence in carrying out a range of tasks required to manage the care of an adult or child on HEN. The second questionnaire tested their knowledge around enteral feeding equipment. Both questionnaires were repeated at the end of the training day to evaluate the programme effectiveness. Responses were coded and entered into a MS Excel database for analysis. A ‘self-efficacy score’ and ‘knowledge score’ were generated for each participant, in addition to analysis of the responses to individual questions.

**Results:** 23 PHN/ CRGNs from across DNCC participated. On average, each had 2 HEN patients on their caseload annually (range 0-6). In their current role, 52% indicated that they troubleshoot feeding tube related problems and 70% monitor and advise on care of the gastrostomy stoma. No participants were reinserting gastrostomy tubes in their current role, and only one nurse had previously been trained to do so.

**Knowledge:** Only 4% ( $n=1$ ) could correctly identify the three types of gastrostomy tube commonly used in Ireland. 96% ( $n=22$ ) were unaware that jejunostomy tubes should not be rotated, or how long to wait before repositioning the external fixator post initial gastrostomy (PEG) insertion. Although checking water volume in a balloon gastrostomy is a task frequently performed by nurses, only 12% ( $n=3$ ) could correctly identify the type of syringe to use. Average knowledge score increased from 38% to 71% after training.

**Self-efficacy:** Two-thirds reported that they were ‘not confident at all’ (28%) or ‘only a little confident’ (38%) in ordering enteral feeding equipment. 55% ( $n=12$ ) were ‘not at all confident’ in their ability to troubleshoot common feeding tube problems, and only 36% ( $n=8$ ) were ‘quite confident’ in their ability to manage gastrostomy stoma problems. Average self-efficacy score increased from 22% to 65% after training.

**Conclusion:** PHN/CRGNs are frequently tasked with providing support in the management of HEN but may lack the knowledge and self-efficacy to do so effectively. It is essential that nurses supporting HEN patients in community have access to relevant training. It is recommended that e-learning training modules based on the content of the training day be made available on HSELand to facilitate on-going learning, and to provide a platform for best-practice updates.

## No.74

### **Title: Prevalence of Night Eating Syndrome Among Obese Adults Attending a Tier 3 Weight Management Service**

**Authors:** Breen C, Gaynor K, Villiers-Tuthill A, Devereux L, Wallace N, Meheghan J, O'Connell J, O'Shea D. Weight Management Service, St Columcille's Hospital, Loughlinstown, Co. Dublin

**Introduction:** Night Eating Syndrome (NES) is an eating disorder characterised by morning anorexia, evening hyperphagia, and insomnia. To fulfil diagnostic criteria an individual must consume at least 25% of daily food intake after the evening meal and/or report  $\geq 2$  nocturnal ingestions (defined as waking up at night to eat) per week. In addition, an individual must experience at least three of the five following features: morning anorexia (defined as absence of morning appetite); a strong urge to eat between dinner and sleep onset and/or during nocturnal awakenings; insomnia at least 4-5 times per week; a belief that eating is necessary to initiate or return to sleep; and depressed mood that worsens during evening hours. Also, an awareness and ability to recall evening or nocturnal ingestions must be present; this criterion is necessary to differentiate NES and Sleep Related Eating Disorder (SRED).

**Methods:** We examined the presence of NEQ at baseline (first visit) in a sample of adults attending a Tier 3 Weight Management Service using the validated Night Eating Questionnaire<sup>1</sup>. A score of 25 or greater is considered suggestive of NES. Data were collated from an electronic database and analysed using Microsoft Excel 2010 (Microsoft, Washington, USA). Data expressed as mean  $\pm$  standard deviation.

**Results:** Completed NEQ data were available on 1094 individuals (66% female), baseline age  $44.7 \pm 12.1$  years, weight  $145.7 \pm 28.3$  kg and body mass index  $50.9 \pm 8$  kg/m<sup>2</sup>. Baseline average NEQ score was  $17.2 \pm 5.1$ . Ninety-eight individuals (8.2%) met the diagnostic criteria for NES with a score  $\geq 25$ .

**Conclusion:** This is the first examination of NES prevalence in an Irish population of obese adults attending a Tier 3 Weight Management Service. Individuals attending dietitians for obesity treatment should be screened for this manifestation of disordered eating to allow individualised dietary treatment strategies, which may differ from those in individuals without NES. Tailored treatment approaches recommended for NES include self-monitoring food and energy intake and regulating meals and snacks more evenly across the day, in addition to cognitive components such as identifying, evaluating, and restructuring maladaptive thoughts<sup>2</sup>.

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- 1.Allison et al (2008). The Night Eating Questionnaire (NEQ): Psychometric properties of a measure of severity of the Night Eating Syndrome. *Eating Behaviours*, 9, 62-72.
- 2.Allison and Tardes (2011). Treatment of Night Eating Syndrome. *Psychiatr Clin North Am*. Dec; 34(4): 785–796.

## No.75

### **Title: Weight Cycling, Weight Loss Expectations and Confidence in Ability to Manage Weight Among Obese Adults Attending a Tier 3 Weight Management Service**

**Authors:** Villiers-Tuthill A, Breen C, Gaynor K, Devereux L, Wallace N, Meheghan J, O'Connell J, O'Shea D. Weight Management Service, St Columcille's Hospital, Loughlinstown, Co. Dublin

**Introduction:** Baseline weight loss expectations are independent cognitive predictors of attrition in patients with obesity entering a weight management program (1). High weight loss expectations followed by discontinuation of active weight management attempts may lead to repeated weight loss cycles. Weight cycling is associated with binge eating, anxiety, depression, and lower overall well-being. Weight cycling is associated with binge eating, anxiety, depression, and lower overall well-being.

**Methods:** Baseline data was gathered using a questionnaire modified from the National Weight Control Registry questionnaire [2]. It included questions on frequency of weight cycling (defined as loss and regain of  $\geq 10$ kg) and weight loss expectations. Respondents were also asked to rate their confidence in their ability to manage their weight on a scale from 1 to 7. Data was analysed using Microsoft Excel 2010 (Microsoft, Washington, USA).

**Results:** Data on 1185 respondents (66% female, (n=781), mean age 45 years (SD 12 years)) were analysed. The majority of patients had weight cycled at least twice, with 13.4% (n=159) never having weight cycled and 24.1% (n=286) reporting weight cycling more than 5 times. The average number of weight cycles was 3 (SD 3.86).

Average weight loss expectation was 16kg (SD 10.2kg) for the coming six months and 32.5kg (SD 24.8) for the coming 12 months, with 499 (42%) and 470 (39.6%) respectively reporting that they didn't mind how much weight they lost during that period. Eight point eight percent (n=104) had initial weight loss expectations of  $\sim 15$ kg that were within the accepted recommendation of 10% target weight loss while the majority (49.2% (n=583) had expectations in excess of 10%. Mean confidence score was 4.90 (SD 2.44).

**Discussion:** Prevalence of repeated weight cycling was high, highlighting the significant challenge faced by those with obesity in maintaining weight loss. High expectations for weight loss may contribute to repeated weight cycling and low self management confidence, and as such should be addressed at the outset of weight management interventions.

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1. Grave et al, Weight Loss Expectations in Obese Patients and Treatment Attrition: An Observational Multicenter Study. *Obesity Research*. 2005.13(11)
2. Wadden, T.A. and G.D. Foster, Weight and Lifestyle Inventory (WALI). *Surg Obes Relat Dis*, 2006. 2(2): p. 180-99

**Title: Exploring the relationship between diabetes distress and glycaemic management in adults with type 1 diabetes mellitus**

**Authors:** Aisling Dunphy<sup>1</sup>, Therese Hogan<sup>2</sup>, Sharleen O'Reilly<sup>3</sup>.

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**Background:** Diabetes Distress (DD) is a prevalent condition associated with the worries, concerns and burden associated with diabetes self-management. Elevated DD is associated with high glycated haemoglobin (HbA1c) in type 1 diabetes (T1D), which may be a result of reduced ability to engage in appropriate self-care/management behaviours due to distress. This suggests that DD may be acting as a barrier to self-management and thus increasing the risk of long-term complications through raised glycaemia. Research in an Irish population with type 1 diabetes is currently lacking. We aimed to explore the relationship between DD and diabetes-related measures of care including glycaemic management and dietary quality.

**Methods:** A cross-sectional study was conducted within patients with T1D attending Wexford General Hospital for their diabetes care. 50 participants were recruited from diabetes out-patient clinics. HbA1c was measured based on the most recent medical record entry. DD was measured using the T1D Distress Scale completed by patients at clinic, which gives a total DD score and individual sub-scores for the seven types of distress. Dietary quality was assessed using the 14-item Mediterranean score questionnaire also completed at clinic. Data was analysed using IBM SPSS Statistics 24.

**Results:** Preliminary analysis, showed no significant correlation between total DD and HbA1c ( $r=0.134$ ,  $p=0.208$ ). The mean total DD score was clinically significant at 2.3 with a SD of 0.8. Mean HbA1c was 70mmol/mol with a SD of 17mmol/mol. Mean dietary quality score was 6.5 with a SD of 2. A significant difference was observed in 'management distress' levels between glycaemic control groups ( $p=0.035$ ). 63% participants with a HbA1c  $>53$ mmol/mol had clinically significant 'management distress' compared with only 14% of those with HbA1c  $<53$ mmol/mol. No significant differences were seen in clinically significant DD and Mediterranean-style diet adherence ( $p=0.7$ ).

**Conclusion/Discussion:** No significant relationship was seen for total DD and HbA1c, but DD was prevalent in this patient group with a clinically significant mean level of DD. Levels of DD also varied across the 7 sub-scales suggesting that some areas of distress were experienced more than others. Greater 'management distress' in those with a HbA1c  $>53$ mmol/mol highlights the potential negative influence of disappointment with self-care efforts. Understanding DD's influence on diabetes management will help target specific types of distress and provide patients with the confidence to improve their self-care behaviours. Additional research is needed on a larger sample to further explore and confirm the effect of DD on glycaemic management.

### **Title: Use of Self-Monitoring Behaviours Among Obese Adults Attending a Tier 3 Weight Management Service**

**Authors:** Devereux L, Villiers-Tuthill A, Breen C, Gaynor K, Wallace N, Meheghan J, O'Connell J, O'Shea D. Weight Management Service, St Columcille's Hospital, Loughlinstown, Co. Dublin

**Introduction:** Self-monitoring (SM) has been identified as the foundation of behavioural weight loss interventions. SM in behaviour change is strongly connected to self-regulation theories and is central to this process<sup>1</sup>. Historically, significant connections have been shown between this method, and weight-loss<sup>2</sup>.

**Methods:** We examined the use of SM techniques in a sample of adults attending a Tier 3 Weight Management Service in two separate SM areas; diet and self-weighing. Data was collected at baseline and 6 month review as part of a standard questionnaire which asked 'How often do you use of a food diary/tracker to monitor what you are eating' and 'How often do you currently weigh yourself?'. Analysis was conducted using Microsoft Excel 2010 (Microsoft, Washington, USA). Data was expressed as mean  $\pm$  standard deviation.

**Results:** Data for baseline and 6 month SM was available for  $n=510$  (62% female). Mean age at baseline was  $45.35 \pm 11.9$  years. SM of intake increased with those reporting never using a food diary/tracker decreasing from 76% at baseline to 55% on repeat. SM of weight also increased with those reporting never weighing themselves decreasing from 50% at baseline to 28% at repeat.

**Conclusion:** This appears to be one of the first analyses of dietary and weighing self-monitoring techniques in an obese Irish cohort. It is important to raise awareness of the efficacy of self-monitoring as a weight management strategy. Healthcare professionals can utilise these techniques in practice to support patients in the development of self-regulatory behaviours.

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## No.78

### **Title: A Follow-Up Study of Irritable Bowel Syndrome Patients Previously Prescribed Low FODMAP Advice: The Effect on Gastrointestinal Symptoms, Diet Acceptability and Medication Use In An Irish Population.**

Authors: Keenan Mairead<sup>1</sup>, Mahon Joan<sup>2</sup>, Lenighan Yvonne<sup>3</sup>.

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**Introduction:** A Low FODMAP (Fermentable Oligo-, Di-, Mono-saccharides And Polyols) diet is a common therapy for Irritable Bowel Syndrome (IBS) patients. The literature suggests that adherence to a FODMAP diet is associated with improved IBS symptoms and quality of life<sup>1,2</sup>. This was a follow-up study, the aim which to investigate any improvement in common IBS symptoms including bowel consistency and frequency, medication use and their overall opinion of the diet after following a low FODMAP diet.

**Methods:** The data was generated from the IBS database from St Luke's General Hospital, Kilkenny which contain data for symptom and bowel scores at baseline and midpoint for 134 IBS patients. An IBS symptom questionnaire was created in the current analysis to assess changes in symptom scores and bowel analysis post-FODMAP diet ('Adapted FODMAP'), compared to baseline ('Habitual Diet'). This data was then collected over the phone in 30 participants. Information on current and previous medication use was also collected and the participants' opinion of the FODMAP diet evaluated.

**Results:** There was a significant improvement in symptom scores following adherence to the low FODMAP diet. There was a significant difference between baseline scores, midpoint and follow-up, with significant differences observed between both IBS categories ( $p = 0.031$ ) and diet categories ('Adapted FODMAP' vs 'Habitual' diet) ( $p = 0.011$ ). Satisfactory symptom relief was significantly greater with the female cohort ( $p = 0.009$ ) and the 'Adapted FODMAP' group ( $p = 0.01$ ) when separated by the duration the participants followed the diet for. Medication use was lower in the 'Adapted FODMAP' group with some reductions/cessation in medication noted.

**Conclusion:** In the current cohort, improvements in IBS symptoms were reported following adherence to a low FODMAP diet. Opinion scores were higher in participants on the 'Adapted FODMAP' diet which suggests an association with diet adherence and symptom improvement. Changes in medication use suggest a possible reduction in reliance on medication such as proton pump inhibitors in participants following a low FODMAP diet. Therefore, this analysis suggests that a Low FODMAP diet is an effective treatment method for patients with IBS at decreasing symptom severity and increasing normal stool and bowel frequency.

#### **References:**

1. Nanayakarra et al, 2016;131-42,
2. O'Keefe et al, 2017;(March):1-13

**Title: Epilepsy and Bone Health**

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 Department of <sup>1</sup>Clinical Nutrition and <sup>2</sup>Neurology, St. James’s Hospital.

**Background:** Epilepsy is a common chronic neurological disease affecting between 5 and 10 individuals per 1000 population. Epilepsy and its treatment can have adverse effects on bone health, and is associated with a 2-3 fold increased risk of fractures compared to the general population. Many studies demonstrate a significant reduction (20-65%) in bone mineral density (BMD) with enzyme-inducing anti-epileptics medications (E.G. phenobarbital, carbamazepine, phenytoin), resulting in higher daily vitamin D doses (2000-4000 IU/d) being recommended as preventive therapy in patients on long-term treatment. There is significant variability in screening for bone health and in prescribing patterns for calcium and vitamin D supplementation to those potentially at risk of osteopenia and osteoporosis.

**Aim and Methods:** The aim of this study was to complete a baseline assessment of bone health of all patients attending a specialist epilepsy OPD clinic. We developed and piloted a self-administered patient questionnaire addressing knowledge of epilepsy-related bone health, current anti-epileptics medications, lifestyle behaviours, screening, supplement use and risk factors for osteoporosis. We used known fracture risk assessment tools FRAX® WHO Fracture Risk Assessment Tool and Q Fracture to assess individual 10 year fracture risk.

**Results:** 214 patients were recruited, 113 male (53%) and 101 female (47%) patients with an average age of 38 (± 15.6 years). Two thirds of patients (67%) were unaware that their epilepsy medications could adversely affect bone health, and reported that bone health had never been discussed by a health care professional. Of those assessed, 11-14% patients had a greater than 10% risk of fracture (using FRAX and Q Fracture Risk Assessment respectively). Epilepsy patients have significant modifiable risk factors for osteoporosis (as seen in Table 1), with 17% of patients reported having a DEXA in the past, with small numbers of patients correctly identifying appropriate calcium and vitamin D supplements.

Enzyme Inducing Anti-epileptic medications (EI AEDs) (1 or more)	81%	Inadequate Calcium intake (<3 dairy products/day)	56%
Personal Fracture History	48%	Calcium Supplements	11%
Family History Osteoporosis	16%	Vitamin D Supplements	4%
High Alcohol intake	10%	Underweight	5%
Current Smoker	33%	DEXA scan reported	17%

**Conclusions & Future Directions:** Given these findings, clinicians should have a lower threshold for assessing bone health and performing fracture risk assessment (prior to DEXA) in patients with clinical risk factors for osteoporosis. While seizure control is paramount, patients with an increased risk need to be identified, preventative measures initiated and therapeutic interventions recommended appropriate to their individual risk factors. Lifestyle changes as well as ensuring adequate Vitamin D and calcium intakes are required amongst this cohort of at risk patients.

## No.80

### **Title: Knowledge and intake of folate and folic acid in vegetarians.**

**Authors:** Michael Dolan<sup>1</sup>, Lucy Brennan, Dr. Katherine Younger<sup>1</sup>, Jessica Roche<sup>2</sup>

Dublin Institute of Technology<sup>1</sup> and Spina Bifida Hydrocephalus Ireland<sup>2</sup>

**Introduction:** Some research has been carried out on folate intake among vegetarians, however there is little on the knowledge of vegetarians

**Methods:** An online questionnaire was shared among various vegetarian group Facebook pages. Twenty-four of the 106 respondents were excluded as they did not follow a vegetarian diet. The questionnaire was available from the 7<sup>th</sup> to 20<sup>th</sup> March 2018.

**Results:** Just over half of those aged <30 (n=38) and one third of those >30 (n=44), did not know the recommended stage for folic acid supplementation. Of the 15 women with children, one did not know the recommended stage for folic acid supplementation, however, 12 of them did not consume the recommended amount of folic acid.

A third of females did not know any good food sources of folate compared to 66% of males. However, 95% reported consuming dark green leafy vegetables/legumes (3-7 times/week) and approximately half reported consuming breakfast cereals and half dairy products. Fifty-eight percent of the females reported taking a supplement which contained folic acid.

In comparison to a mixed group of students (surveyed 2017<sup>1, 2</sup>), vegetarians showed greater knowledge of food sources of both folate and folic acid and reported greater intakes of vegetables (46% versus 21% daily) and supplements (70% versus 53%).

**Conclusion:** This sample demonstrated an overall lack of knowledge regarding the requirements for folic acid.

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2. Geraghty C. Knowledge and awareness of folic acid and neural tube defects among young Irish women. Undergraduate degree, DIT, 2017.

**No.81**

**Title: A mixed methods systematic review of the barriers and facilitators to implementation of menu labelling interventions to support healthy food choice.**

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(Abstract not available)

## Title: Food Solutions to Improve Vitamin D Status

**Authors:** Aislinn McCourt & Dr Aifric O'Sullivan.

**Introduction:** Vitamin D is a fat soluble nutrient synthesised in the skin on exposure to UVB rays or consumed in foods such as eggs, oily fish, and fortified foods. Vitamin D has a key role to play in bone metabolism as well as a potential link with diabetes and cancer risk. Older adults are at risk for vitamin D insufficiency due to decreased dermal synthesis and absorption, and changes in dietary habits. In Ireland, older adults have low vitamin D intakes, with a mean daily intake of 6.3µg, which is below the widely accepted Institute of Medicine (IOM) recommended daily allowance (RDA) of 15µg. Low intakes can be partially attributed to infrequent consumption of natural food sources of vitamin D. The aim of this study is to examine the frequency and amount of vitamin D food intake and determine the impact of food fortification in older Irish adults.

**Methods:** National Adult Nutrition Survey participants aged 50+ years were included in this study. The vitamin D content of foods was updated to current levels and vitamin D intakes from natural and added sources were calculated. Data modelling was used to determine the impact of target food fortification strategies to serve as a basis for potential public health policies.

**Results:** The mean daily intake of vitamin D was 6.7±7.2µg in a ratio of 40:60 from natural and added food sources. Milks and breads were frequently consumed by this cohort and were subsequently targeted for the data modelling exercise. Food fortification of these foods increased intakes by ~37-145%. Assessment of individual mean daily intakes showed that fortifying milks, super-milks and breads with 2.5µg/100mL, 1.5µg/100g and 5µg/100g vitamin D respectively is safe, as no participants exceeded the TUL for vitamin D (100µg).

**Conclusion:** Currently the majority of older Irish adults are not meeting dietary recommendations for vitamin D. Fortification of commonly consumed foods such as milk and bread is a safe and effective way of improving vitamin D intakes in this cohort. Public health regulators in Ireland should consider a vitamin D food fortification policy to overcome the gap between current vitamin D intakes and international recommendations.

**Title: Evaluation of the nutritional intake of newly recruited combat training personnel in comparison to the military dietary reference intakes.**

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**Introduction:** Nutritional intake plays an important role in maintaining optimal health and performance outcomes of combat training personnel. Tactical training is designed to simulate active duty by exposing combat training personnel to a range of stressors e.g. decreased nutritional intake and increased physical activity; however this often results in a nutrient deficient-state during training. The purpose of this study was to evaluate the nutritional intake of newly-recruited combat training personnel during low intensity training compared to Military Dietary Reference Intakes (MDRI).

**Methods:** Participants completed 4-day food diaries using a smartphone Application (App) or handwritten food diaries. Anthropometric measurements were also taken.

**Results:** Compared with MDRI, participants failed to consume sufficient energy (males: 84%,  $p < 0.001$ ; females: 50%,  $p = 0.815$ ) and carbohydrates (males: 92%,  $p < 0.001$ ; females: 78%,  $p = 0.002$ ) and met or over consumed protein (males: 95%,  $p < 0.001$ ; females: 100%,  $p < 0.001$ ). Male and female participants had significant differences in fat intake ( $p = 0.048$ ); fat contributed to greater than 30% of total calorie intake in 67% of female participants ( $p = 0.017$ ).

**Conclusion:** Inadequate nutritional intake may negatively affect the health, performance and recovery of combat training personnel during training. Future research should aim to examine the nutritional requirements of combat training personnel during training of varying intensity and the impact of nutritional intake on health and performance.

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