NUTRICIA
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EDUCATION

44th ESPEN CONGRESS

ESPEN 2022 : NUTRICIA SATELLITE SYMPOSIUM

TIME TO STEP UP:
CHALLENGING THE STATUS QUO TO ENHANCE PATIENT RECOVERY

4th September, 18:00-19:30 CEST
Room: Strauss 1-3

DIGITAL SYMPOSIUM BOOKLET

AGENDA

18:00	**Welcome and set the scene** *Niamh Rice* *Consultant Nutritionist and Dietitian*	View chair's introduction
18:05	**MUSCLE as the target for effective intervention and recovery** *Prof Luc van Loon* *Professor of Physiology of Exercise and Nutrition, Maastricht University, The Netherlands*	View speaker bio and abstract
18:25	**Fit for CANCER treatment: the importance of early, continuing and targeted nutrition therapy** *Prof Carla Prado* *Professor at University of Alberta, Director of the Human Nutrition Research Unit, Canada*	View speaker bio and abstract
18:40	**Malnutrition in STROKE neurorehab: muscling in on the situation** *Prof Mario Siebler* *Medical Director, Chief Physician Dept. of Neurology, MEDICLIN Specialist Clinic Rhine/Ruhr, Germany*	View speaker bio and abstract
18:55	**Does incomplete recovery set patients up for FRAILTY? Taking a fresh look** *Dr Emanuele Cereda* *Researcher and Physician, Nutrition & Dietetics, Fondazione IRCCS Policlinico San Matteo, Pavia*	View speaker bio and abstract
19:10	**Facilitated panel discussion, Q&A and chair's conclusions**	

Dear Colleagues,

Have you ever wondered if medical nutrition could be even more effective? Are you eager to challenge your thinking on why and when medical nutrition should be delivered?

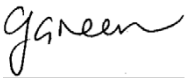
I am delighted to welcome you to the Nutricia-sponsored satellite symposium entitled **"Time to Step up: Challenging the Status Quo to Enhance Patient Recovery"** where world leading experts will discuss how earlier and better interventions could potentially alter the trajectory of disease and ageing.

Nutricia has a long track record in empowering healthcare professionals to implement evidence-based practice. This year will be no different; indeed this session will question whether we - collectively as the leaders of the nutritional community - can do much more to align with the science and drive better patient outcomes.

In addition to the satellite symposium, the ESPEN conference offers Nutricia the opportunity to showcase our investment in new clinical research and implementation initiatives. We are immensely proud that in the last couple of years we have set up several real world evidence programs in 21 countries across the globe to support activities to better understand and improve nutritional care for patients. The first and largest so far was the NutriCOVer program – where more than 2300 patients have been enrolled in studies related to COVID-19. Please see the evidence section on the Nutricia booth for more details on this and other programs. We are also delighted that 16 Nutricia-supported research projects will be presented at ESPEN as oral communications or posters. These are described in more detail in this booklet and are available as abstracts in Clinical Nutrition. Last but not least, we have organized several "meet the expert" sessions led by international opinion leaders on topics of key interest to healthcare professionals. We believe that these initiatives will help drive clinical practice improvements and better patient outcomes.

We are looking forward to many interactions with ESPEN delegates during the conference. Please visit us at the Nutricia booth and do not hesitate to contact us if you have any questions or suggestions.

Yours sincerely,



Ceri Green, PhD

Medical Affairs and Health Innovation Director, Disease-Related Malnutrition and Frailty

Danone Specialized Nutrition

To discover more on Nutricia's presence at ESPEN, click here

CHAIR OF THE SYMPOSIUM

Niamh Rice is a Board Director and founding member of the Irish Society for Clinical Nutrition and Metabolism (IrSPEN).

She is also an independent consultant in nutrition and medical affairs as CEO of Previs Healthcare, specialising in strategy, health policy and media advocacy. With over 30 years of experience working in senior scientific, general management and strategic global roles within the medical and infant nutrition industry in the UK, Ireland and Netherlands, Niamh has published several papers on nutritional screening and health economics and has authored or contributed to many expert reports, business cases and government submissions, many aimed at addressing gaps in nutritional services or access. This included the development of a costing model and budget impact analysis for the establishment of national clinical guidelines for malnutrition screening in hospitals, approved by the Irish government as mandatory in 2020.

A qualified dietitian and nutritionist with a background that combines clinical nutrition, business and health economic expertise, Niamh has been appointed to several national expert nutrition committees in the UK and Ireland and in her capacity within IrSPEN, has designed and spearheaded campaign strategies leading to improved standards and better access to nutritional care.

View introductory video

PROF
LUC VAN LOON

Professor of Physiology of Exercise and Nutrition,
Maastricht University, The Netherlands

Prof. van Loon was appointed Professor of Exercise and Nutrition at Maastricht University in The Netherlands in 2010. He also serves as a visiting Professor at the Free University of Brussels in Belgium and the Australian Catholic University in Melbourne, Australia. Luc has an international research standing in the area of skeletal muscle metabolism, and has published well over 400 peer-reviewed articles (more than 20.000 citations) achieving an H-index of 80. Current research in his laboratory focuses on the skeletal muscle adaptive response to physical (in)activity, and the impact of nutritional and pharmacological interventions to modulate metabolism in both health and disease. The latter are investigated on a whole-body, tissue, and cellular level, with skeletal muscle as the main tissue of interest. He is active in various media to translate research findings to the general public, highlighting the impact of nutrition and physical activity to support healthy aging.

Session 1:

MUSCLE as the target for effective intervention and recovery

Prof. van Loon will outline the evidence behind muscle anabolism, with emphasis on the impact of ageing and disease. The right nutrition, at the correct time and in adequate doses is crucial to optimize protein accretion. Preserving muscle mass is always better than having to regenerate it. Healthcare professionals are called on to use the evidence in a proactive manner to prevent muscle loss in patients.

PROF CARLA PRADO

Professor at University of Alberta, Director of the Human Nutrition Research Unit, Canada

Prof. Carla Prado, PhD, RD is a Professor at the University of Alberta, and a Campus Alberta Innovates (CAIP) Chair in Nutrition, Food and Health. She is also the Director of the Human Nutrition Research Unit, a state-of-the-art research and training facility.

Carla is an expert in assessing nutritional status through the precise measurement of body composition and energy metabolism. Her research has shown for the first time the prevalence and clinical implications of sarcopenic obesity (concurrent appearance of low muscle and high fat) in cancer. Her work has also provided evidence of the independent effect of body composition on cancer recurrence, surgical complications, treatment toxicity, and survival. The focus of her current research program is to develop targeted nutrition interventions to optimize muscle health in patients with cancer.

She is an Editorial Board member of Clinical Nutrition, the Journal of Cachexia, Sarcopenia and Muscle, and Current Opinion in Clinical Nutrition and Metabolic Care. Dr. Prado is a past recipient of Canada's Top 40 Under 40, an award that celebrates exceptional young Canadian leaders of all sectors, and she was recently inducted into the Royal Society of Canada, the highest academic honor in her country.

Session 2:

Fit for CANCER treatment: the importance of early, continuing and targeted nutrition therapy

Prof. Prado will highlight the relevance of nutrition support across the full cancer journey and spectrum. Preserving muscle mass is an important treatment goal for nutrition support for cancer patients, shown to improve clinical outcomes. She will demonstrate evidence that assertive, timely and continued nutrition support practices are crucial for patient care.

PROF MARIO SIEBLER

Medical Director, Chief Physician Dept. of Neurology, MEDICLIN Specialist Clinic Rhine/Ruhr, Germany

Prof. Dr. Mario Siebler is medical director and chief physician of the department of neurology at the MEDICLIN Specialist Clinic of Rhine/Ruhr in Essen, Germany. He has a distinguished career in medicine spanning almost 40 years, with numerous awards and accolades within the field of neurology, and hundreds of scientific publications and textbooks to his name.

Prof. Siebler's treatment focus includes complete neurological, neurophysiological and neuropsychological diagnostics and neurorehabilitative therapy. In addition, he is an expert in the special treatment of cerebrovascular diseases such as stroke, and works with neurophysiological therapeutic stimulation technologies and telemedicine.

Currently he is regional representative of the German Stroke Aid Foundation (since 2001), Scientific Chief of the Mediclin Rehab Research Institute, and was a founding member of the state initiative for medical technology, MeTNet NRW. He has also been involved in many key societies, including the European Society of Neurosonology and Cerebral Hemodynamics (ESNCH), German Stroke Society (DSG), German Neurology Society (DGN), and Mediclin/Asclepios advisory board.

Session 3:

Malnutrition in STROKE neurorehab: muscling in on the situation

Prof. Siebler will outline the specific and unique challenges faced by stroke patients, which become more severe and complex with underlying malnutrition, dysphagia and subsequent muscle loss. New evidence shows that low nutrient levels already exist in the immediate aftermath of a stroke, further supporting the importance of providing sufficient nutritional care early on in the stroke journey. While the clinical picture with muscle loss is complicated by the consequences of stroke, preserving muscle mass in unaffected limbs is also relevant.

DR EMANUELE CEREDA

Researcher and Physician, Nutrition & Dietetics, Fondazione IRCCS Policlinico San Matteo, Pavia

Dr. Cereda graduated as an MD in 2002, and was awarded the specialization degree in Clinical Nutrition in 2006 and PhD in "Clinical and Experimental Nutrition" in 2009. Since 2010 he has worked as a physician and research scientist at the Clinical Nutrition and Dietetics Unit of the Fondazione IRCCS Policlinico "San Matteo" (Pavia, Italy). As lead investigator in many clinical trials, his research activities are substantiated by a large number of publications (>150) in highly ranked peer-reviewed international journals (reaching an Impact Factor of ~1000; H-Index: 34) and by several chapters in national and international books, mainly dealing with disease-related malnutrition and related complications in hospital and institutions, wound healing, clinical nutrition in oncology, geriatrics and neurodegenerative diseases (mainly Parkinson's disease). He is Associate Editor of Clinical Nutrition and serves as an active reviewer for several international peer reviewed journals dedicated to clinical nutrition or focusing on nutritional topics.

Session 4:

Does incomplete recovery set patients up for FRAILTY? Taking a fresh look

Dr. Cereda will take a critical look at the evidence showing how poor continuity of care and discontinued nutrition support practices, or worse inappropriate "wait and see" approaches can aggravate a pre-frail situation and ultimately lead patients into frailty. He will also highlight the importance of focusing on muscle mass and functional preservation beyond just looking at weight as an anthropometric marker.

ABSTRACTS

Highly prevalent malnutrition, lower nutritional intake, and lower blood levels of nutritional compounds in sub-acute stroke patients with or without dysphagia

EPA enriched oral nutritional supplements with a tailored sensory design to address taste alterations are appreciated by patients with cancer

Effects of specialized tube feeding composition vs standard tube feeding in healing complex pressure ulcers in stroke/brain injury patients

High protein oral nutritional supplements enable the majority of cancer patients to meet ESPEN protein recommendations during systemic treatment

Inadequate intake during the post-ICU ward stay

Severity of GLIM-defined malnutrition in the Dutch primary care setting at the initial dietitian consult: preliminary results from the MONDAY study

Do Dutch primary care dietitians advise medical nutrition as recommended by the national malnutrition guideline? Preliminary results from the MONDAY study

Muscle protein synthesis with a dairy and plant-based protein blend (P4) is bioequivalent to whey protein in aged mice undergoing starvation

Evaluation of the effects of a new ready to drink, plant-based oral nutritional supplement (ONS) in adult community patients at risk of disease-related malnutrition (DRM)

A ready to drink, plant-based oral nutritional supplement is highly complied with, palatable and tolerated in community-based patients at risk of disease-related malnutrition

Compliance with an energy-dense low-volume oral nutritional supplement versus a standard high-energy supplement: a non-inferiority randomized crossover trial

Morphofunctional assessment with nutritional ultrasound parameters of post-ICU patients with COVID. Preliminary results of NutriEcoMuscle study

One-year post-discharge healthcare resources utilisation of critically ill COVID-19 survivors from NutriCOVID study

Long-term nutritional, functional status and health-related quality of life of critically ill COVID-19 survivors: one-year follow-up of NutriCOVID study

An evidence-based guide for identifying and managing malnutrition and frailty in the community setting

Uncovering the dark side of COVID-19 on nutrition therapy

ABSTRACT 1

HIGHLY PREVALENT MALNUTRITION, LOWER NUTRITIONAL INTAKE, AND LOWER BLOOD LEVELS OF NUTRITIONAL COMPOUNDS IN SUB-ACUTE STROKE PATIENTS WITH OR WITHOUT DYSPHAGIA

N. Van Wijk [1], B. Studer [2,3], C. van den Berg [1], M. Lansink[*,1], M. Siebler [4,5], T. Schmidt-Wilcke [2,6]

[1]Danone Nutricia Research, Utrecht, Netherlands, [2]Formerly at St. Mauritius Therapieklinik, Meerbusch, [3]Medical Faculty, University of Düsseldorf, Institute for Clinical Neuroscience, Düsseldorf, [4]Neurologie und Neurorehabilitation, Fachklinik Rhein Ruhr, Essen, [5]Neurology Department, University of Düsseldorf, Düsseldorf, [6]Neurologisches Zentrum, Mainkofen, Germany

Rationale: Malnutrition is prevalent after stroke, particularly if post-stroke oropharyngeal dysphagia (OD) reduces nutritional intake. Stroke complications are not limited to protein-energy malnutrition, but can also include micronutrient insufficiencies. To further understand stroke-related malnutrition, a thorough nutritional assessment was performed in subacute ischaemic stroke patients with or without OD.

Methods: Moderate ischaemic stroke patients with (N=36) or without (N=49) OD between 2-12 weeks post stroke were included in this exploratory, cross-sectional study in rehabilitation centres in Germany (trialregister.nl: NL6625). Patients were age- and sex-matched to healthy reference (HR) subjects. Presence of (risk of) malnutrition, nutritional intake, blood concentration of a broad range of nutritional compounds, quality of life (QoL), and activities of daily living (ADL) were assessed.

Results: More than half of the stroke patients had (risk of) malnutrition, with higher prevalence in OD vs. non-OD patients. Reported energy, macronutrient, and water intake were lower in stroke patients vs. matched HR subjects. Fasted blood concentration of vitamins B1, B2, B6, A, D, and E, selenium, choline, DHA, EPA, and albumin (and others) were significantly lower in stroke vs. HR (relative differences: -5 to -60%), irrespective of OD status. Stroke patients had a poorer hydration status as reflected by higher blood sodium and osmolality levels compared to HR subjects. As expected, QoL and ADL were significantly lower in stroke vs. HR, with OD scoring worse than non-OD patients.

Conclusion: Nutritional status was highly impaired in sub-acute moderate stroke patients admitted to rehabilitation centres. Interestingly, blood levels of specific nutritional compounds were similarly lower in stroke patients with or without OD vs. HR, even though patients with OD were more likely to be malnourished and reported lower QoL and ADL. These results underline that it is important to manage the nutritional status of every stroke patient, either with or without OD, during rehabilitation.

Disclosure of Interest: N. Van Wijk Other: Employee of Danone Nutricia Research with Danone employee company shares, B. Studer: None Declared, C. van den Berg Other: Employee of Danone Nutricia Research with Danone employee company shares, M. Lansink Other: Employee of Danone Nutricia Research with Danone employee company shares, M. Siebler Consultant for: an advisory board organized by Nutricia, Other: a presenter at training events and online virtual seminars organized by Nutricia, T. Schmidt-Wilcke: None

Declared Keywords: Blood nutrient levels, Ischaemic Stroke, Minerals, MNA-SF, nutritional intake, Nutritional Status, Omega-3 polyunsaturated fatty acids, Oropharyngeal dysphagia, Stroke rehabilitation, Stroke-related malnutrition, Vitamins

ABSTRACT 2

EPA ENRICHED ORAL NUTRITIONAL SUPPLEMENTS WITH A TAILORED SENSORY DESIGN TO ADDRESS TASTE ALTERATIONS ARE APPRECIATED BY PATIENTS WITH CANCER

C. Kwiecien[1], V. Pouyet[1], L. E. Daly[*,1], I. Fernandez Gonzalez[1], H. Blanchard[1], E. Bilman[2], S. Mekers[2], N. Boireau[1]

[1]Danone Nutricia Research, Utrecht, [2]Ipsos, Amsterdam, Netherlands

Rationale: Omega-3 fatty acids, in particular eicosapentaenoic acid (EPA) have anti-inflammatory properties that can mitigate systemic inflammation, a strong driver of cancer-related malnutrition. EPA-enriched oral nutritional supplements (ONS) can improve nutritional status, body composition and quality of life in patients with cancer[1]. However, palatability of EPA enriched ONS is often challenging, due to the use of fish oil (as source of EPA), and can be even more difficult for patients with sensory changes, which can impact ONS adherence. Herein, we evaluated if a low volume, high protein, EPA enriched ONS with tailor-made sensory design to address sensory alterations are liked in patients with cancer.

Methods: Patients undergoing treatment completed a questionnaire on sensory alterations and evaluated overall liking of 4 prototype flavors (3 cooling flavours containing menthol derivatives which can stimulate the trigeminal nerve, Cool Berry (CB), Cool Lemon (CL), Cool Mango Peach (CMP)) and 1 Neutral flavour for sensory hypersensitivity) of Fortimel Compact Protein with Omega 3 (125 ml, 306 kcal, 18 g protein, 10 µg vitamin D) on a 10-point scale via a monadic sequential blind sip test. Fitting attributes were selected using a CATA method.

Results: Fifty patients were included, with as most common diagnoses breast (28%), lung (24%) and prostate (10%) cancer. Taste and smell alterations were reported by 52% and 48% of patients, respectively. Metallic taste was particularly common among patients with taste alterations (58%). Taste alterations negatively impacted patients' daily life quite a lot or very much in 42% of patients. Of the flavours tested, two flavours were selected as rated highest, with a liking score >6/10 reported by 80% for CB and 72% for CMP flavours. Patients liked the cooling sensation in both flavours (78% in CB and 76% for CMP). Refreshing and easy to drink, were reported as the most common associated attributes for CB (72% and 70%, respectively) and CMP (66% for both).

Conclusion: Cancer patients undergoing treatment liked the EPA enriched ONS sensory adapted flavours, and appreciated the cooling sensation. Optimizing the palatability and acceptability of ONS with a low volume and sensory design innovation addressing specific sensory challenges, combined with a validation with patients undergoing treatment, aims to improve patient adherence and maximize the effectiveness of ONS.

References: 1. Arends et al. 2017 Clin Nutr, 36(1):11-48

Disclosure of Interest: None

Declared Keywords: Cancer related malnutrition, Inflammation, oncology, oral nutritional supplement, taste alteration

ABSTRACT 3

EFFECTS OF SPECIALIZED TUBE FEEDING COMPOSITION VS STANDARD TUBE FEEDING IN HEALING COMPLEX PRESSURE ULCERS (PUS) IN STROKE/BRAIN INJURY PATIENTS

D. V. Nevzorova[*,1]

[1]Federal Scientific and Practical Center for Palliative Care, Moscow, Russian Federation

Rationale: Prolonged healing of PUs is due to multiple factors: the degree of damage of the skin and underlying tissues that are subjected to increased pressure, presence of local ischemia in tissues, decreased immune response, presence of protein energy malnutrition and deficiency of macro and micronutrients.

Methods: A prospective, multicenter, randomized comparative study aimed to evaluate the effect of nutritional intervention with a specialized enteral feed composition vs standard enteral tube feeds in complex PUs. Group 1 received Nutrison Advanced Cubison 1.5 L/day containing Arg, Zn, Se, Vits A, C, E, designed to support wound healing. Group 2 received standard tube feeds. The primary endpoint was evaluation of changes in PUs healing and size by what proportion of patients in both groups showing decreases in PUs area by 20% or more by date of completion of observations. Secondary endpoint was duration of treatment for PUs in Group 1. The observation period was up to 28 days from the date of Visit 1.

Results: A total of 55 stroke or brain injured patients were included with a median age of 64 y.o. (Min 29 y.o. Max 75 y.o). PUs was completely healed in 62% of subjects in Group 1 vs 34% subjects in Group 2 (p≈0.04). Duration of complete healing of PUs occurred on average in 21 days in Group 1 vs on average 24 days in Group 2 (p=0,005). A reduction in the area of PUs was observed in 76% subjects in Group 1 vs 51% subjects in Group 2 (p=0,012). The average duration of treatment for reducing area PUs by 20% or more was 16 d. in Group 1 vs 20 d. in Group 2 (p=0,014).

Conclusion: The specialized wound healing formula demonstrated efficacy and safety in stroke/brain injured patients with decreased size of PUs, and reduced time to partial or complete healing of PUs versus standard formulae.

Disclosure of Interest: None Declared

Keywords: None

ABSTRACT 4

HIGH PROTEIN ORAL NUTRITIONAL SUPPLEMENTS ENABLE THE MAJORITY OF CANCER PATIENTS TO MEET ESPEN PROTEIN RECOMMENDATIONS DURING SYSTEMIC TREATMENT

A Dingemans[1], N. van Walree[2], F. Schramel[3], M. Youssef-E Soud[4], E. Baltruškevičienė[5], W. Lybaert[6], M. Veldhorst[7], C. van den Berg[7], S. Kaasa*[,8]

[1]Department of Pulmonology, Erasmus Medical Center Cancer Institute, Rotterdam, [2]Department of Pulmonary Diseases, Amphia Hospital, Breda, [3]Department of Pulmonary Diseases, St. Antonius Hospital, Nieuwegein, [4]Department of Pulmonary Diseases, Máxima Medisch Centrum, Veldhoven, Netherlands, [5]Department of Medical Oncology, National Cancer Institute, Vilnius, Lithuania, [6]Department of Medical Oncology, AZ Nikolaas, Sint-Niklaas, Belgium, [7]Nutricia Research, Utrecht, Netherlands, [8]Department of Oncology, Oslo University Hospital, Oslo, Norway

Rationale: ESPEN guidelines recommend minimum protein intakes of 1.0 g/kg/day and up to 1.5 g/kg/day for patients with cancer to help maintain or restore lean body mass[1]. However, achieving recommended intakes is often difficult for patients, especially during systemic anti-cancer treatment. Herein, we evaluated if high protein oral nutritional supplements (ONS) can support patients in meeting ESPEN protein recommendations.

Methods: In an open-label, multi country, multi centre, controlled study, 126 patients with colorectal and lung cancer receiving first line treatment with chemo(radio-) or immunotherapy were to be randomized (2:1) to receive 2 servings/day of Fortimel® Compact Protein (125ml, 18g protein, 306 kcal per serving) or standard of care. At T0 (baseline), T1 (end of 1 st treatment cycle), T2 (end of 2nd treatment cycle) and T3 (week 12, end of the intervention), protein intake was assessed with a 3-day food diary and body weight (BW) was measured. Primary endpoint was protein intake at T1.

Results: Between Jan 2019 and Jun 2021, 37 patients were included in this study (n=26, test group (TG) and n=11, control group (CG)). Due to challenges in patient recruitment, the study was terminated prematurely. At baseline, only 65% and 45% of patients in the TG and CG, respectively, met ESPEN minimum protein intake recommendations. At T1 and T2, protein intake was significantly higher in the TG compared to the CG (1.40 vs. 1.07 g/kg/day at T1, p=0.008; 1.32 vs. 0.94 g/kg/day at T2, p=0.002). A higher proportion of patients met ESPEN minimum protein recommendations, 88% at both T1 and T2 in the TG compared to 55% at T1 and 40% at T2 in the CG. No significant differences were observed in protein intake at T3. The TG increased in BW with 0.55kg from T0 to T1 and with 0.89kg from T0 to T2, compared to the CG which decreased in BW with -0.09kg from T0 to T1 and with -0.46kg from T0 to T2. At T3, both TG and CG increased in BW of 0.81kg and 0.84kg compared to T0, respectively. Mean compliance to ONS was 73.4%.

Conclusion: Without specific nutritional support, cancer patients often fail to meet the minimal protein intakes advised by ESPEN guidelines. High protein, low volume ONS consumed twice daily enables the majority of patients to reach minimal ESPEN protein recommendations. Adequate protein intake is important to prevent nutritional deterioration, and can support muscle mass/function and improve outcomes during treatment.

References: 1. Arends et al. 2017 Clin Nutr, 36(1):11-48

Disclosure of Interest: None

Declared Keywords: Cancer related malnutrition, high protein, Nutritional Support, oncology, oral nutritional supplement

ABSTRACT 5

INADEQUATE INTAKE DURING THE POST-ICU WARD STAY

Slingerland-Boot H[a], van der Heijden I[b], Schouten NE[a], Driessen Lb, Meijer S[b], Mensink MR[b], van Zanten ARH[a,b]

[a] Departmentof Intensive Care Medicine, Gelderse Vallei Hospital, Ede, The Netherlands, [b] WageningenUniversity & Research, Division of Human Nutrition and Health, Wageningen, The Netherlands

Rationale: Nutritional intake during the post-Intensive Care Unit (ICU) ward stay has reported to be inadequate, and formal guidelines are lacking. To close the gap with individualized support, detailed understanding of intake patterns is needed.

Methods: A prospective observational cohort study was conducted in post-ICU critically ill patients in general wards. Nutritional intake was assessed daily using intake composition data and post-meal digital photography. The primary outcome was energy and protein adequacy. Secondary outcomes were readmission and mortality rates comparing patients meeting protein requirements or not.

Results: In total, 48 patients were enrolled, and 484 observational days analyzed, including 1,681 photos. Overall mean caloric and protein adequacy for all intake groups was 82.3% (SD 18.3) and 83.1% (SD 19.8). Only 53.7% reached overall >90% of protein targets during their entire post-ICU ward stay. The lowest intake was seen in the oral intake only group (protein adequacy median 75.5% [IQR 69.1-94.7]. Less calories and proteins were ordered and consumed than prescribed. In contrast, patients with (supplemental) enteral nutrition (EN) all met >90% of the protein targets. However, discontinuation of EN led to marked drops in energy (44.1%) and protein intake (50.7%), and patients needed up to 6 days to reach protein targets again. A trend in the composite endpoint of mortality and hospital readmission was observed ($p<0.10$), favoring the >90% adequacy group.

Conclusion: Most patients did not meet nutritional targets during their post-ICU ward stay. Performance was highly dependent on the type of nutrition. An adequate intake was observed in patients with (supplemental) EN, although cessation of EN posed a nutritional risk. A trend towards improved outcomes in the high adequacy group was found. Findings stress the need for future studies to close the gap with individualized post-ICU nutritional support.

ABSTRACT 6

SEVERITY OF GLIM-DEFINED MALNUTRITION IN THE DUTCH PRIMARY CARE SETTING AT THE INITIAL DIETITIAN CONSULT: PRELIMINARY RESULTS FROM THE MONDAY STUDY

M. J. Sealy*[,1], P. Mulder[2], H. Jager-Wittenaar[1,3] and FAITH research, Groningen, the Netherlands

[1]Research Group Healthy Ageing, Allied Health Care and Nursing, Hanze University of Applied Sciences, Groningen, Groningen, [2]Nutricia Nederland B.V., Zoetermeer, [3]Department of Oral and Maxillofacial Surgery, University of Groningen, University Medical Center Groningen, Groningen, Netherlands

Rationale: Although malnutrition is common across healthcare settings in the Netherlands, severity of malnutrition at the start of the dietary treatment in the primary care setting is unclear. We aimed to assess severity of malnutrition in adult clients with malnutrition (risk) at the start of dietary treatment in the primary care setting.

Methods: Eligible were clients referred to dietitians for malnutrition (risk) and participating in the monitoring Nutritional status and dietary intake (MONDAY) study. The Global Leadership Initiative on Malnutrition (GLIM) criteria[1] were applied and clients were included if 4 out of 5 criteria could be assessed. Phenotypical criteria weight loss, low BMI and reduced muscle mass were assessed as proposed by Cederholm et al.[1] Appendicular skeletal muscle index was determined by bio-electrical impedance analysis (Bodystat 500; Kyle equation). For the etiological criterion reduced food intake/assimilation, intake ≤50% of energy requirements, or PG-SGA Box 2 score ≥2, or GI complaints that adversely impact food assimilation/absorption reported in PG-SGA Box 3 were used. For the criterion inflammation/disease burden, primary diagnosis or co-morbidities were used. GLIM-defined malnutrition was present if ≥1 phenotypical and ≥1 etiological criterion were met. Malnutrition was graded moderate or severe, based on weight loss and BMI as proposed by Cederholm et al.[1]

Results: 186 clients (64±21 years; 58% female) were included. In total, 134 (72%) clients were diagnosed with malnutrition, of which 33 (18%) had moderate malnutrition and 92 (50%) had severe malnutrition. In 9 (7%) clients, severity of malnutrition could not be graded.

Conclusion: Preliminary results of MONDAY show that prevalence of severe malnutrition of clients starting dietary treatment in the primary care setting is high, indicating a strong need for prevention of decline in nutritional status by referring to dietitians in an earlier stage.

References: [1] Cederholm T, Jensen GL,Correia MITD, et al. GLIM criteria for the diagnosis of malnutrition-A consensus report from the global clinical nutrition community. Clin Nutr 2019;38(1):1-9.

Disclosure of Interest: M. Sealy: None Declared, P. Mulder Other: PM is an employee of Nutricia Nederland B.V. Dietitians were solely responsible for patient recruitment, nutritional assessment, set-up of the nutritional care plan as well as the follow-up of patients. Nutricia had no role in data collection, data management and data analysis., H. JagerWittenaar: None Declared

Keywords: GLIM, GLIM criteria, malnutriton, primary care setting

ABSTRACT 7

DO DUTCH PRIMARY CARE DIETITIANS ADVICE MEDICAL NUTRITION AS RECOMMENDED BY THE NATIONAL MALNUTRITION GUIDELINE? PRELIMINARY RESULTS FROM THE MONDAY STUDY

M. J. Sealy*,[1] , K. E. Fopma[1] , M. Peters[1] , P. Mulder[2] , H. Jager-Wittenaar[1,3] and FAITH research, Groningen, the Netherlands

[1]Research Group Healthy Ageing, Allied Health Care and Nursing, Hanze University of Applied Sciences, Groningen, Groningen, [2]Nutricia Nederland B.V., Zoetermeer, [3]Department of Oral and Maxillofacial Surgery, University of Groningen, University Medical Center Groningen, Groningen, Netherlands

Rationale: The Dutch Malnutrition guideline includes advice on when to prescribe fortified food and medical nutrition to clients with malnutrition (risk).[1] However, it is unknown to what extend primary care dietitians implement guideline recommendations in practice. Therefore, we explored the agreement between dietary advice provided at the initial consult and dietary advice suggested in the malnutrition guideline. Methods: Dietitians provided dietary advice to clients with malnutrition (risk) who participated in the Monitoring Nutritional status and Dietary intake (MONDAY) study at initial consult. To compare dietary advice given by dietitians with the malnutrition guideline, energy intake was assessed and categorised. If energy intake is ≥75% of energy requirement (ER), the guideline suggests prescribing oral nutritional supplements (ONS) and/or food fortified with energy and protein. If intake is 50-74% of ER, the guideline suggests prescribing ONS and/or enteral nutrition (EN).

If intake is <50% of ER, the guideline suggests prescribing EN. Weighted kappa (κ) was used to analyze agreement between the advice of the dietitian and the recommendation by the Malnutrition guideline. Cut-offs used for κ were: <0=none, 0–0.20=slight, 0.21–0.40=fair, 0.41–0.60=moderate.

Results: Included were 181 clients (67±20 years; 60% female; mean energy intake 1479±539 kcal/day) treated by primary care dietitians. Table 1 demonstrates a moderate agreement (κ=0.53) between dietary advice given by primary care dietitians and dietary advice according to the Dutch Malnutrition guideline.

Table 1. Agreement between prescribed medical nutrition and malnutrition guideline

		Malnutrition Guideline			
	κ=0.53	≥75% of ER:Fortified food and/or ONS	50-75% of ER:ONS and/or EN	<50% of ER:EN	Total
Dietary advice by dietitians	≥75% of ER:Fortified food and/or ONS	103	15	6	124
	50-75% of ER:ONS and/or EN	0	34	16	50
	<50% of ER:EN	5	1	1	7
	Total	108	50	23	181

Conclusion: The results of our study suggest that when intake is <50% of ER, dietary advice by primary care dietitians deviates from the Dutch Malnutrition guideline recommendations. Noteably, dietitians prescribe EN markedly less often than recommended. Further research is needed to get insight in reasons for current practice.

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Keywords: Home Enteral Feeding, malnutrition, Medical nutrition therapy, primary care setting

ABSTRACT 8

MUSCLE PROTEIN SYNTHESIS WITH A DAIRY AND PLANT-BASED PROTEIN BLEND (P4) IS BIOEQUIVALENT TO WHEY PROTEIN IN AGED MICE UNDERGOING STARVATION

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Rationale: Processing and blending of purified protein sources can improve amino acid (AA) bioavailability and protein quality. A specific combination of dairy proteins (Whey and Casein) rich in essential AA and plant-based protein isolates (Pea and Soy) rich in conditionally essential AA has been shown to provide a well-balanced AA profile[1]; however less is known how this translates to muscle protein synthesis (MPS). Hence, the aim of this study was to investigate the effect of this P4 protein blend compared to single dairy-based protein sources on MPS in aged mice undergoing starvation.

Methods: 25 months aged C57/BL6Rj mice were starved overnight, followed by an oral gavage of 0.5ml water (fasted control, n=7), 70 mg of either whey (n=14), casein (n=17), or P4 (35% whey-25% casein-20% soy-20% pea, n=15), and after that a subcutaneous injection with 0.04mmol/g bodyweight puromycin. Exactly 60 min after ingestion, the left tibialis anterior (TA) muscle was isolated to determine MPS by the SUnSET method to analyze signaling proteins. AA composition was determined in the right TA muscle, and in plasma. Dried blood spots generated via tail cut incisions were analyzed for postprandial AA dynamics at 10-20-45-60 min.

Results: In contrast to casein, but similar to whey, MPS was significantly increased after ingestion of P4 compared to fasted ($P<0.05$), despite lower plasma and intramuscular leucine levels for P4 compared to whey ($p<0.05$). The ratio of phosphorylated 4E-BP1 to total protein was increased for whey and P4, whereas phosphorylated p70S6K was only increased for whey compared to fasted. Blood AA levels were already elevated 10min after ingestion for all protein groups compared to fasted; P4 resulted in specifically higher levels of arginine at 10min vs whey protein.

Conclusion: P4 protein blend is as potent as whey in stimulating MPS in aged mice undergoing starvation.

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Disclosure of Interest: M. Van Dijk Other: working at Danone Nutricia Research, F. Dijk Other: working at Danone Nutricia Research, Z. Hofman Other: working at Danone Nutricia Research, Y. Luiking Other: working at Danone Nutricia Research, M. Furber Other: working at Danone Nutricia Research, A. van Helvoort Other: working at Danone Nutricia Research

Keywords: Amino acids, Muscle Protein Synthesis, Plant-based Protein

ABSTRACT 9

EVALUATION OF THE EFFECTS OF A NEW READY TO DRINK, PLANT-BASED ORAL NUTRITIONAL SUPPLEMENT (ONS) IN ADULT COMMUNITY PATIENTS AT RISK OF DISEASE-RELATED MALNUTRITION (DRM)

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Rationale: The use of oral nutritional supplements (ONS) has been shown to be effective for managing disease-related malnutrition (DRM). The aim of this one-arm multi-centre intervention study was to evaluate the effects of a plant-based ONS in community adult patients at risk of DRM.

Methods: A ready to drink, plant-based, nutritionally complete ONS (300kcal, 12g protein: 1.5kcal/ml, Nutricia Ltd., UK), was prescribed (≥1/day) alongside dietary advice for 28days, to adult community-based patients with multiple diagnoses at risk of DRM. Body weight, BMI, 'MUST' score[1], dietary intake (24h dietary recall), and appetite (Simplified Nutritional Appetite Questionnaire (SNAQ)[2]) were assessed at baseline and intervention end. Intention to treat data analysis was performed.

Results: Twenty-four patients (age:59±18years; BMI:18.9±3.3kg/m^2) were included. High risk of malnutrition[1] reduced from 20 to 16 patients (p=0.046) with a significant increase in body weight (+0.6±1.2kg, p=0.02) and BMI (+0.2±0.5kg/m^2, p=0.03) at intervention end. Total energy intake significantly increased (from 1204±575kcal/day to 1576±404kcal/day, +371±457kcal/day, p=0.001), as well as protein intake (from 44±21g/day to 58±17g/day, +14±39g/day, p=0.03). Appetite (from 11.3±3.0 to 11.9±3.5, p=0.13) and food-only energy intake (from 1078±368kcal/day to 1208±319kcal/day, +130±325 kcal/day; p=0.43) were maintained throughout the study.

Conclusion: The intervention with a new ready to drink, plant-based ONS alongside dietary advice significantly improved clinical outcomes in community-based patients at risk of DRM. Further investigation is required to ascertain the clinical benefits of using a plant-based supplement in the management of patients with malnutrition.

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ABSTRACT 10

A READY TO DRINK, PLANT-BASED ORAL NUTRITIONAL SUPPLEMENT IS HIGHLY COMPLIED WITH, PALATABLE AND TOLERATED IN COMMUNITY-BASED PATIENTS AT RISK OF DISEASE-RELATED MALNUTRITION

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Rationale: There is currently no ready to drink, plant-based oral nutritional supplement (ONS) available to patients at risk of disease-related malnutrition (DRM). This one-arm multi-centre intervention study evaluated compliance, palatability and tolerance of a plant-based ONS.

Methods: Patients with multiple diagnoses at risk of DRM (n=24; age: 59±18years; BMI: 18.9±3.3kg/m^2) received dietary advice alongside ≥1bottle/day of a 200ml ready to drink, plant-based, nutritionally complete ONS (Fortisip PlantBased 1.5kcal, Nutricia Ltd., UK), containing 300kcal and 12g protein/bottle for 7-28days. Reason for requiring a plant-based ONS, daily compliance (%consumed vs. prescribed), end of intervention ONS palatability, and pre- and end of intervention gastrointestinal (GI) tolerance were recorded.

Results: Patients required a plant-based ONS due to personal preference (27%), cultural/religious reasons (23%), veganism or wish to reduce animal-derived food consumption (16%), and sustainability reasons (13%). Compliance to the ONS was excellent (94±16%) with most patients (n=20) consuming 1-2 bottles daily for 28 days. Patients confirmed that the ONS was convenient (92%) and fitted in well with their current diet (83%). Palatability was rated good to excellent (out of 10) for taste (6.3±2.5), aftertaste (6.5±2.4), smell (6.8±2.3), appearance (7.5±2.1), and thickness (7.5±2.0). GI symptoms were stable throughout the study with patients (79%) and healthcare professionals (88%) confirming that the plant-based ONS was well tolerated.

Conclusion: This study shows that: (i) there are a variety of reasons why patients at risk of DRM may choose a ready to drink, plant-based, nutritionally complete ONS; and (ii) this plant-based ONS is highly complied with, palatable, and well tolerated.

ABSTRACT 11

COMPLIANCE WITH AN ENERGY-DENSE LOW-VOLUME ORAL NUTRITIONAL SUPPLEMENT VERSUS A STANDARD HIGH-ENERGY SUPPLEMENT: A NON-INFERIORITY RANDOMIZED CROSSOVER TRIAL

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RATIONALE: Compliance with oral nutritional supplements (ONS) is key to improving patient nutritional status, especially in disease-related malnutrition (DRM). Compliance can be influenced by the energy density and volume of the ONS. We aimed to evaluate compliance (defined as the percentage of consumed energy out of prescribed) with an energy-dense ONS (edONs) versus a high-energy standard ONS (sONS).

METHODS: A randomized, crossover trial was conducted in adult patients with DRM from 2 Spanish hospitals. Patients were randomly assigned to take 2 bottles daily of an ONS for 4 weeks and then switched to the other ONS. Sequence in group A was edONS (2.4kcal/ml;125ml) + sONS (2.0kcal/ml;200ml), and in group B was sONS (2.0kcal/ml;200ml) + edONS (2.4kcal/ml;125ml). Nutritional status (SGA) and body mass index (BMI) were recorded at baseline, weeks 4 and 8. Patients daily recorded the wasted ONS volume. Based on wasted ONS recorded and energy prescribed, compliance was estimated for each group period. Statistical analysis considered a non-inferiority margin of 5% and a significance p-value <0.05 (Stata v.14).

RESULTS: A total of 73 patients were recruited (63% male; mean age 55.7±13.9). At baseline, the mean BMI was 22, 49% were mild/moderately malnourished and 51% were severely malnourished. Patients from group A (n=42) showed 89%/84% of compliance with edONS/sONS, with a difference of 4.5% between periods (p=0.18). Group B (n=31) showed 79%/84% of compliance with sONS/edONS, with a difference of 5.6% (p=0.01). Compliance with edONS was non-inferior versus sONS. In both groups, mean BMI increased slightly with edONS; at the last visit, 9.5% in Group A and 12.9% in Group B were well-nourished.

CONCLUSIONS: Compliance with edONS is higher than sONS, achieving similar nutritional results with less wasted product.

ABSTRACT 12

MORPHOFUNCTIONAL ASSESSMENT WITH NUTRITIONAL ULTRASOUND PARAMETERS OF POST-ICU PATIENTS WITH COVID. PRELIMINARY RESULTS OF NUTRIECOMUSCLE STUDY

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Rationale: To evaluate nutritional and morphofunctional status of COVID-19 patients at hospital discharge.

Methods: Observational study in COVID-19 patients discharged from ICU. Body composition was assessed by BIA and utritional ultrasound and functional status by hand-grip strength and timed "up and go" test (TUG).

Results: 96 patients. Mean age: 58.8 (8.5) years, 71.9% males. According to GLIM criteria, 52.1% patients presented moderate and 46.9% severe malnutrition. During hospitalization, percentage of weight loss was 11.6% (SD 6.7). Hand grip strength was < 27kg in 56.5% of the male and < 16 kg in 77.8% women. Body composition parameters are displayed in Table. Fat free mass index <17 kg/m2 in 34.3% of the male and < 15 in 26.1% women. Phase angle (N=96) < 3.95o in 29.5%, SPA (N=31) < -1.85 in 54.8%. US myosteatosis was reported in 78.1% males and 100% females. TUG test was pathologic (> 20 sec.) in 27.7% (20.9% men and 44.4% women). A positive correlation was observed between muscle area and phase angle (rho=0.51), and between muscle area and hand grip strength (rho=0.55).

	Males (n=69)	Females (n=27)
Overweight≥ 25 - 29.99 Kg/m2	28 (41.2%)	5 (18.5%)
Obesity* ≥ 30 Kg/m2	19 (27.9%)	16 (59.3%)
FFMI** (kg/m2)	18 ± 4.5	16.3 ± 3.3
Phase angle (º)	4.6 ± 1.1	4.4 ± 0.9
Preperitoneal adipose tissue	0.8 ± 0.4	1.0 ± 0.5
RF-CSA** (cm2)	3.7 ± 1.4	2.6 ± 0.6
Thickness RF* (cm)	1.2 ± 0.5	0.9 ± 0.2

SMI: Skeletal Muscle Index; FFMI: Fat Free Mass Index; RF-CSA: Rectus femoris cross sectional area; *p<0.05 (Fisher's test). **p<0.005 (Mann-Whitney test)

Conclusion: Almost all post-ICU COVID patients had some degree of malnutrition at hospital discharge and also a high prevalence of overweight or obesity and myosteatosis. Ultrasound nutritional parameters show a good correlation with BIA-body composition analysis and functional test in these patients.

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Disclosure of Interest: None Declared

Keywords: bioimpedance, COVID 19, Nutritional ultrasound

ABSTRACT 13

ONE-YEAR POST-DISCHARGE HEALTHCARE RESOURCES UTILISATION OF CRITICALLY ILL COVID-19 SURVIVORS FROM NUTRICOVID STUDY

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Rationale: High rates of hospitalisation and intensive care unit (ICU) admissions have been observed in patients with severe COVID-19, with approximately 22% of mortality for those requiring ICU. There are few studies on the healthcare resource utilisation (HRU) of ICU survivors. We aim to describe the HRU of COVID-19 ICU survivors from the NUTRICOVID cohort for one year after discharge.

Methods: A descriptive analysis of HRU of the NUTRICOVID cohort followed-up for 12 months post-discharge was performed. We assessed rates of primary and specialised care visits, emergency department (ED) visits and hospital readmissions. Visits were classified according to the association with COVID-19, and the use of respiratory and nutritional support during readmissions was explored. A bivariate analysis of the number of visits was carried out based on the patient's risk of malnutrition (MUST) and functional status (SARC-f and Barthel Index) at discharge. The analysis was performed with STATA v.14.

Results: A total of 188 out of 199 patients (95%) completed the 12-months follow-up. 83% and 96% of the cohort patients had visits with primary and specialised care, respectively. The mean (SD) for the number of visits per patient to primary and specialised care was 5 (5) and 15 (13), respectively. Among the total number of registered visits (3,795), 23% were to primary care and 77% to specialised care, with 60% and 80% related to COVID-19 in each setting. The rate of ED visits in our cohort was 38%, being 53% related to COVID-19. The readmission rate was 17% with 8% of patients requiring ventilation and 24% nutritional support. No differences were found in the HRU in patients with higher nutritional and functional risk versus those with lower risk.

Conclusion: During one-year post-discharge, ICU COVID-19 survivors showed a high HRU, however, only 17% of patients were readmitted to the hospital. The majority of primary care, specialised care and ED visits were related to COVID-19.

Disclosure of Interest: None Declared

Keywords: Covid-19, Critically ill, Healthcare Resource Use, nutritional and functional status, readmission

ABSTRACT 14

LONG-TERM NUTRITIONAL, FUNCTIONAL STATUS AND HEALTH-RELATED QUALITY OF LIFE OF CRITICALLY ILL COVID-19 SURVIVORS: ONE-YEAR FOLLOW-UP OF NUTRICOVID STUDY

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Rationale: Over 70% of patients admitted to intensive care units (ICU) for COVID-19 have survived the acute illness. Previous evidence showed a meaningful early improvement of nutritional, functional and health-related quality of life (HRQoL) in critically ill COVID-19 survivors, however, evidence related to long-term outcomes is limited. NUTRICOVID study describes the nutritional and functional evolution of this population over a one-year follow-up period.

Methods: An ambispective observational cohort study was conducted in 16 public hospitals in Madrid (Spain) with ICU COVID-19 survivors. A descriptive analysis of nutritional status (weight and MUST), functional status (SARC-F and Barthel), prescribed medical nutritional treatment (MNT) and HRQoL (EQ-5D) at discharge and 12 months after discharge was conducted. The analysis was performed with STATA v.14.

Results: A total of 199 patients admitted to ICU were included in the study. During hospitalization, patients lost an average (SD) weight of 16% (8%). At discharge, 83% and 87% of patients were at high risk of malnutrition and sarcopenia, 81% were moderate-high dependent, and 70 patients received MNT. The median EQ-VAS (IQR) at discharge was 39 (25-50) points out of 100. 188 patients completed the 12-month follow-up. At 12 months post-discharge, the weight gain was 17% (14%); 2% and 13% of patients were still at high risk of malnutrition and sarcopenia, while 81% were independent. Only 6 patients continued with an MNT. The EQ-VAS improved to 73 (50-75) points.

Conclusion: At 12 months post-discharge ICU COVID-19 survivors showed a significant improvement in their nutritional and functional status, as well as their HRQoL.

Disclosure of Interest: None Declared

Keywords: Covid-19, Critically ill, nutritional and functional status, Post-ICU nutrition, Quality of life

ABSTRACT 15

AN EVIDENCE-BASED GUIDE FOR IDENTIFYING AND MANAGING MALNUTRITION AND FRAILTY IN THE COMMUNITY SETTING

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Rationale: Malnutrition and frailty are under-recognised and under-treated in community settings and have devastating impacts on patients and their families. With ageing populations, the burden of these conditions is expected to increase globally. Our team has developed guidance for the identification and nutritional management of malnutrition and frailty in the community setting.

Methods: The guide's development was underpinned by: a) a comprehensive literature review on malnutrition and frailty; b) a survey of Australian and New Zealand dietitians' current practices for identifying/managing these conditions; and c) interviews with dietitians and other stakeholders. Over a year, guide content was developed and revised by two authors and a multidisciplinary expert panel that included dietitians, geriatricians, exercise scientist, nurse, pharmacist and consumer representatives.

Results: The guide was recently launched (March 2022) and includes guidance on: 1) identifying malnutrition and frailty in the community (steps include: screening, referral, and assessment/diagnosis); and 2) the nutritional management of these conditions (steps include: setting goals/selecting outcome measures, selecting/implementing nutrition interventions, and evaluating/monitoring outcomes). Detailed guidance on each step and practical examples of how to enact these will be presented at the conference. The guide also includes general information on malnutrition and frailty, provides an overview of screening tools validated in the community, and highlights the roles various members of the multidisciplinary team can play in identifying and supporting the nutritional management of these conditions. Emphasis is also placed on patient- and family-centred care approaches. Finally, the guide contains pathways to guide practice and resources to support patient care. While the guide was tailored to the Australian and New Zealand community setting, it could easily be adapted to other countries.

Conclusion: This guide provides community-based health professionals with recommendations for identifying and managing malnutrition and frailty in their settings. Wide dissemination and facilitated implementation projects will assist with its uptake

ABSTRACT 16

UNCOVERING THE DARK SIDE OF COVID 19 ON NUTRITION THERAPY

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Rationale: Critically ill patients have an improved outcome when adequate nutrition therapy guided by indirect calorimetry(IC) is provided. However, several issues like ignorance and technical problems but also workload hamper adequate provision of this cardinal care bundle. The COVID-19 pandemic challenged care systems all around the world and especially the ICU's with an important workload for all medical and paramedical staff. We prospectively inquired how this would impact nutrition therapy.

Methods: Fifty critically ill patients with a minimum length of stay of 7 days were prospectively followed up until hospital discharge or 28 days of ward stay. IC was planned to be performed every week. We analysed the daily nutritional adequacy calculated by the ratio intake/needs and expressed in % and how it differed between COVID positive (C+) and negative(C-) patients in the ICU and on the ward.

Results: IC was performed in C+ in 51% of times compared to C- patients in 71% of times which was statistically significant different p=0,046.

In the ICU, nutritional adequacy of calories in C+ versus C- were respectively 71(±29)% and 79(±26)% p=0,363. For protein provision in the ICU, this was respectively 70(±28)% and 70(±28)% p=0,988. In the ward, nutritional adequacy for calories in C+ versus C- were respectively 51(±31)% and 60(±24)% p= 0,486. For protein provision on the ward this was respectively 44(±19)% and 53(±24)% p=0,399.

Conclusion: Covid 19 negatively impacts the use of IC.

However, it only slightly hampered nutritional adequacy in the ICU compared to C- with slightly less adequate caloric prescription which did not reach statistical significancy.

Nutrition therapy is less adequate in the ward in C+ compared to C-, although this did not reach statistical significant difference. Further efforts should be made to improve the use of IC in C+.

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