

Nutrition and Hydration

Current Awareness Bulletin

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Supporting patients with meals and snack times while in hospital

Through The Patients Association's project work with NHS England, patients and carers have identified several areas where NHS resources supporting meal and snack times in hospital could be strengthened or improved through minor amendments. Participants in a focus group said that NHS England's existing written resources for patients and staff were clear and helpful, but felt that some changes and additional information on the online portal, where the resources are accessed, could make them even better.

Investigation report: nutrition management of acutely unwell patients in acute medical units

The purpose of this investigation was to support improvements in the identification of malnutrition and management of nutritional needs for patients within acute medical units (AMUs). AMUs are the first point of entry for patients referred to hospital as an acute medical emergency by their GP and those requiring admission from the emergency department. The investigation uses, as an example, a real patient safety incident in which a man's nutritional needs were not met for 19 days' stay in hospital, of which 13 days were in AMU, resulting in him losing up to 26% of his body weight within a six-week period.

The evolving role of dietitians in neonatal units and beyond.

Smith M. *Paediatrics and Child Health* 2024;34(5):148-153.

[This review will describe the vital role that neonatal dietitians can fulfil, from the unit level to the broader network level, in collaboration with families and the comprehensive multidisciplinary team. It highlights the importance of optimal neonatal dietetic staffing, both within neonatal units and in broader healthcare contexts, to achieve these objectives effectively.]

1. Feasibility and acceptability of a culinary nutrition programme for adults with mild-to-moderate intellectual disability: FLIP Food and Lifestyle Information Programme

Authors: Asher, R. C.; Shrewsbury, V. A.; Innes, B.; Fitzpatrick, A.; Simmonds, S.; Cross, V.; Rose, A.; Hinton, E. and Collins, C. E.

Publication Date: 2024

Journal: Journal of Applied Research in Intellectual Disabilities 37(5), pp. 1–15

Abstract: Background: Culinary nutrition education can support improved diet-related health and wellbeing. This pre-post pilot study aimed to assess feasibility and acceptability of an eight-session culinary nutrition programme, the Food and Lifestyle Information Programme

(FLIP), for adults with mild-to-moderate intellectual disability. A secondary aim was to evaluate preliminary programme effectiveness. Method: Participants were recruited through a disability service provider. Feasibility measures were: recruitment and retention; implementation; engagement and participation; adverse outcomes; and feasibility of outcome measures. Acceptability was assessed using an interactive process evaluation. Effectiveness measures included cooking frequency, cooking and food skill confidence and diet quality. Results: Six of eight participants completed the intervention with high attendance and programme engagement. FLIP was well received by participants and support workers. No adverse outcomes occurred. Diet quality was feasible to assess. Conclusions: Findings can inform content, delivery and evaluation of future culinary nutrition programmes for adults with mild-to-moderate intellectual disability.

2. First occurrence and risk assessment of microplastics in enteral nutrition formulas

Authors: Basaran, Burhan;Aytan, Ülgen and Şentürk, Yasemen

Publication Date: 2024

Journal: Food and Chemical Toxicology : An International Journal Published for the British Industrial Biological Research Association 191, pp. 114879

Abstract: Occurrence and characteristics of microplastics were evaluated in enteral nutrition formulas, for the first time. A total of 30 samples belonging to 9 brands were analysed. Physical and chemical characteristics of microplastics were identified by stereomicroscopy and micro-Raman spectroscopy, respectively. The mean number of microplastics was 45 ± 63 MP/L. Two different shapes of microplastics were detected with fibres (62%) being the most common microplastics followed by fragments (38%). The most common color of microplastics was black (37%) followed by blue (26%), orange (15%), green (7%), red (7%), grey (4%) and multicolor (4%). The length of microplastics ranged from 10 to 2086 μm with an average of 548 ± 526 μm . Estimated mean daily microplastic intake for four different scenarios varied between 24 to 61 and 30 to 76 MPs/day for women and men, respectively. The mean polymer hazard index and microplastic load index levels were calculated as 380 and 1.30, respectively. The results of this study showed that microplastics are prevalent in enteral nutrition products. The presence of polymers with high hazard risk scores in enteral nutrition formulas may pose a risk to the health of patients with special nutritional needs.; Competing Interests: Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

3. Empathy in Nutrition and Dietetics: A Scoping Review

Authors: de Graaff, Emma;Bennett, Christie and Dart, Janeane

Publication Date: 2024

Journal: Journal of the Academy of Nutrition & Dietetics 124(9), pp. 1181–1205

Abstract: Empathy is fundamental to the provision of efficacious patient-centered health care. Currently, there is no comprehensive synthesis of peer-reviewed empirical research related to empathy in the nutrition and dietetics profession. Understanding empathy in the context of nutrition and dietetics care may lead to improved teaching practices that support nutrition and dietetics students and practitioners to provide high-quality, empathic, patient-centered care. This scoping review aimed to understand the approaches through which empathy is conceptualized, measured, and taught in the field of nutrition and dietetics. Using the Preferred Reporting Items for Systematic reviews and Meta-Analyses-Scoping Reviews Statement and Checklist, a scoping review process was undertaken. Five databases were searched in February 2023: Cumulative Index to Nursing and Allied Health, Embase, Medline, PsycInfo, and Scopus, with no date limits. Eligible studies were English language-based, peer-reviewed, empirical research exploring or measuring empathy as an outcome in primary data stratified to nutrition and dietetics. Extracted qualitative data were synthesized and analyzed thematically with an inductive, interpretivist approach applied to conceptualize the interrelationship between empathy and dietetic practice. Quantitative data were extracted and summarized in a table. Twenty-six studies were included in the scoping review. Analysis identified 2 overarching themes underpinning the current literature on empathy in nutrition and dietetics that described empathy as a key skill in the application of patient-centered care, which was supported by approaches to lifelong cultivation of empathy in the nutrition and dietetics profession. A range of tools has measured empathy in nutrition and dietetics students and practitioners with no clear consensus in findings across studies. This review identified the extent and nature of empathy within nutrition and dietetics, from both practitioner and patient perspectives, and the vast array of approaches used to teach and quantify empathy in students and practitioners. Insights from this review inform the need for future studies. The results of this review suggest that future research include exploring implications of empathic dietetics care on patient outcomes and identification of best practice, evidence-based curricula and strategies to support sustainable cultivation and maintenance of empathic care across the career span of nutrition and dietetics practitioners.

4. What influences the implementation of clinical guidelines related to enteral nutrition in the intensive care unit: A mixed-methods systematic review

Authors: Li, Jia Qi;Sun, Ting;Zuo, Jun Tao;Xu, Yao;Cai, Li Na;Zheng, Heng Yu and Ye, Xiang Hong

Publication Date: 2024

Journal: Journal of Advanced Nursing

Abstract: Aims: To systematically evaluate and analyse literature concerning the factors influencing the implementation of clinical practice guidelines related to enteral nutrition in the adult intensive care unit.; Background: Guidelines serve as crucial tools for guiding clinical practice. However, a significant gap persists between current clinical practice and guidelines pertaining to enteral nutrition. It is essential to identify the reasons behind this disparity to foster clinical transformation.; Methods: A mixed-methods systematic review.; Data Sources: A systematic search was conducted across PubMed, Embase, Medline, Cochrane, PsycINFO and CNKI databases to identify impediments and facilitators to the implementation of ICU

clinical practice guidelines related to enteral nutrition. The types of studies included quantitative, qualitative and mixed-methods studies. The search spanned from January 2003 to January 2024 and was updated in May 2024. The quality assessment of the included literature was conducted using the Mixed-Methods Study Evaluation Tool (MMAT). Data analysis was performed using a data-based convergent integration approach. The protocol for this study was prospectively registered (PROSPERO2023, CRD42023483287).; Results: Twenty papers were finally included, and 65 findings were extracted, integrating a total of three categories, Category 1: healthcare provider factors, including three sub-themes: knowledge of guideline-related knowledge and awareness of guideline application; social/professional roles and identity domains; beliefs, attitudes and self-efficacy; collaboration, Category 2: practice environments, including two sub-themes: environmental factors and resource areas; systems and behavioural norms, Category 3: patient values and nutritional support preferences including two sub-themes: patient disease status and value orientation.; Conclusion: Healthcare professionals should analyse obstacles and facilitators to guideline implementation from multiple perspectives, strengthen healthcare collaboration, improve education and training systems, correct misperceptions and increase awareness of evidence-based practice. (© 2024 John Wiley & Sons Ltd.)

5. Nutrition and behavioral health in cystic fibrosis: Eating and body image

Authors: Lyons, Emma R.;Muther, Emily and Sabharwal, Sabina

Publication Date: 2024

Journal: Pediatric Pulmonology 59 Suppl 1, pp. S36–S43

Abstract: People with CF (pwCF) are at high risk for malnutrition, making nutritional management a critical aspect of CF care. Over the past several decades, optimal nutritional status for pwCF has been defined by body mass index (BMI) based on evidence linking suboptimal BMI to decreased lung function and life expectancy, although more recent changes in CF care may also bring changes to how nutritional health is defined. The historical focus on weight, BMI, and nutrition as key parts of multidisciplinary CF care starting at an early age places pwCF at increased risk for body image concerns and disordered eating. The landscape of CF care is evolving with the approval of highly effective modulator therapies (HEMT) and resulting improvements in growth; however, issues related to body image and eating remain important to consider, especially as past difficulties gaining weight may shift to discomfort with one's weight gain and/or physical appearance. This review aims to describe how body image concerns and disordered eating occur in pwCF across the lifespan; to discuss evidence-based approaches to addressing these concerns; and to identify future directions for research and clinical practice in assessing and treating eating disorders and body image concerns in this population. (© 2024 Wiley Periodicals LLC.)

6. Clinical nurse specialists in nutrition: A systematic review of roles and clinical experiences

Authors: Mancin, Stefano;Pipitone, Veronica;Testori, Angelica;Ferrante, Sergio;Soekeland, Fanny;Sguanci, Marco and Mazzoleni, Beatrice

Publication Date: 2024

Journal: International Nursing Review 71(3), pp. 521–530

Abstract: Background/scope: The Clinical Nurse Specialist in Nutrition is a professional capable of providing specialist clinical assistance and leadership-related clinical nutrition. To date, although their role has already been identified, there is still uncertainty about how this figure can actually fit into the various global health systems. The purpose of this review is to clarify and define the role of this professional aimed at analysing clinical experiences and data from nutrition scientific societies. Methodology: A systematic literature review was conducted using the Prisma Statement in the Cochrane Library databases and subsequently in PubMed, Embase, CINAHL, Scopus and Web of Science. In addition, a manual search of studies published in Google Scholar was conducted for the analysis of 'grey literature'. Out of 3,320 identified records, 20 studies were included in the present review. Correction added on 06 June 2024, after first online publication: The preceding sentence has been corrected from "Out of 2,348 identified records, 21 studies were included in the present review." to "Out of 3,320 identified records, 20 studies were included in the present review" in this version.] Results: The development of specific training, certification and qualification protection courses is contributing to the development of this professional in various hospital and community clinical contexts. The clinical experiences identified have shown that this figure is able to provide specialist assistance by offering high levels of safety, efficacy and quality of the care provided. Conclusions/ implications for nursing: The implementation of nurse nutrition specialist, to date, is still limited at the global level, and training programmes coordinated between scientific societies and nursing universities could be the basis for the development of this specialization in countries where today this figure is not yet present.

7. Nutritional support team intervention in surgical ICUs and its effect on nutrition delivery and quality in critically ill patients

Authors: Martinuzzi, Andrés;Crivelli, Adriana;Lopez, Ariel;Sgarzini, Darío;Aragon, Virginia;Galeano, Fátima;Billinger, Maria Cristina;Doeyo, Mariana;Matano, Milagros;Salomone, Paula;Cabrera, Dafne;Fabro, Ariana Del and Manrique, Ezequiel

Publication Date: 2024

Journal: Nutrition (Burbank, Los Angeles County, Calif.) 125, pp. 112501

Abstract: Rational: Critically ill surgical patients pose one of the greatest challenges in achieving nutritional goals. Several published papers have demonstrated clear benefits when nutrition support (NS) is managed by a multidisciplinary nutrition support team (NST). We hypothesized that implementing a NST in a surgical intensive care unit (ICU) would increase the number of patients achieving their nutritional goals.; Material and Method: Multicenter "BEFORE & AFTER" study. In the BEFORE phase, an audit of the previous state of NS was conducted in three ICUs without a NST.; Intervention: Implementation of a NST and protocol. In the AFTER phase, a new audit of NS was conducted. Continuous variables (presented as mean \pm SD or median Q1-Q3) were tested using the t-test and Mann-Whitney U test.

Categorical variables (presented as frequencies and percentages) were assessed using the chi-square test. A binomial logistic regression model was performed, with independent variables introduced using a stepwise forward method. A difference was considered to be significant with a two-sided P-value <0.05. Statistical analysis was conducted using IBM-SPSS 26.; Results: A total of 83 patients were included in the BEFORE phase, and 85 in the AFTER phase. The latter group showed a higher frequency of nutritional risk and malnutrition (SGA B+C odds ratio 2.314, 95% CI 1.164-4.600). Laparoscopy was more frequently utilized as a surgical technique in the AFTER phase. No differences were observed in ICU and hospital LOS or 90 days' survival rates. Two variables remained independent factors to predict NS achievement: NST implementation (odds ratio 3.582, 95% CI 1.733-7.404), and surgical technique (odds ratio 3.231, 95% CI 1.312-7.959).; Conclusion: NST positively impacts the chance of achieving NS goals in critically ill surgical patients.; Competing Interests: Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Andres Martinuzzi reports administrative support, statistical analysis, and writing assistance were provided by NUTRIHOME SA. Andres Martinuzzi reports a relationship with NUTRIHOME SA that includes: employment. Adriana Crivelli reports a relationship with NUTRIHOME SA that includes: employment. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. (Copyright © 2024 Elsevier Inc. All rights reserved.)

8. Nutrition and chronic musculoskeletal pain: A narrative review and directions for temporomandibular disorder research and management

Authors: Mesquita, Maria Laura Marreiro;Magalhães, Aghata Kelma,Palacio Gomes;Nascimento, Matheus Vieira;Pascoal, Samuel Chillavert Dias;Pontes, Karina Matthes de Freitas;Bonjardim, Leonardo Rigoldi;Conti, Paulo César Rodrigues and Pinto Fiamengui, Livia,Maria Sales

Publication Date: 2024

Journal: Journal of Oral Rehabilitation 51(9), pp. 1925–1931

Abstract: Background: Recent evidence suggests neuro-immune mechanisms may link dietary patterns to chronic painful conditions (CPC). In the research field of oro-facial pain (OFP), studies focuses primarily on dietary mechanical limitations due to pain and dysfunction. Objective: This narrative review aimed to overview the role of nutrition on CPC, with emphasis on temporomandibular disorder (TMD), enlightening OFP researcher on dietary assessment possibilities and providing directions for studies in the field of OFP and nutrition. Methods: A PubMed database search was performed using the MeSH and non-MeSH descriptors: "temporomandibular joint disorder"; "orofacial pain"; "musculoskeletal pain"; "chronic pain disorders"; "nutrition"; "diet"; "dietary therapy"; "dietary intake" and "inflammation". No time restrictions were applied. Literature reviews, systematic reviews, meta-analyses and clinical and pre-clinical trials were included. Results: Exogenous oxidants from unhealthy dietary patterns may contribute to peripheral and central pro-inflammatory immune signalling leading to peripheral and central sensitization. Furthermore, diets rich in bioactive compounds are suggested to contribute to pain management of CPC. High dietary intake of ultra-processed

foods impacts the quality of the diet and shows adverse health outcomes. In this context, the role of nutrition on TMD remains overlooked. Conclusion: Considering diet may influence CPC, allied with the scarcity of studies evaluating the role of nutrition on TMD, well-designed clinical trials based on dietary assessments and measurements capable of evaluating food quality, UPF consumption and nutrient adequacy—added to serum nutrient levels evaluation—are suggested.

9. Non-invasive technology to assess hydration status in advanced cancer to explore relationships between fluid status and symptoms: an observational study using bioelectrical impedance analysis

Authors: Nwosu, Amara Callistus;Stanley, Sarah;Mayland, Catriona R.;Mason, Stephen;McDougall, Alexandra and Ellershaw, John E.

Publication Date: 2024

Journal: BMC Palliative Care 23(1), pp. 1–18

Abstract: Background: Oral fluid intake decreases in advanced cancer in the dying phase of illness. There is inadequate evidence to support the assessment, and management, of hydration in the dying. Bioelectrical impedance analysis (BIA) is a body composition assessment tool. BIA has the potential to inform clinical management in advanced cancer, by examining the relationships between hydration status and clinical variables. Aim: BIA was used to determine the association between hydration status, symptoms, clinical signs, quality-of-life and survival in advanced cancer, including those who are dying (i.e. in the last week of life). Materials and methods: We conducted a prospective observational study of people with advanced cancer in three centres. Advance consent methodology was used to conduct hydration assessments in the dying. Total body water was estimated using the BIA Impedance index ($\text{Height} - H \text{ (m)}^2 / \text{Resistance} - R \text{ (Ohms)}$). Backward regression was used to identify factors (physical signs, symptoms, quality of life) that predicted H₂/R. Participants in the last 7 days of life were further assessed with BIA to assess hydration changes, and its relationship with clinical outcomes. Results: One hundred and twenty-five people participated (males n = 74 (59.2%), females, n = 51 (40.8%)). We used backward regression analysis to describe a statistical model to predict hydration status in advanced cancer. The model demonstrated that 'less hydration' (lower H₂/R) was associated with female sex (Beta = -0.39, p < 0.001), increased appetite (Beta = -0.12, p = 0.09), increased dehydration assessment scale score (dry mouth, dry axilla, sunken eyes - Beta = -0.19, p = 0.006), and increased breathlessness (Beta = -0.15, p = 0.03). 'More hydration' (higher H₂/R) was associated with oedema (Beta = 0.49, p < 0.001). In dying participants (n = 18, 14.4%), hydration status (H₂/R) was not significantly different compared to their baseline measurements (n = 18, M = 49.6, SD = 16.0 vs. M = 51.0, SD = 12.1; t(17) = 0.64, p = 0.53) and was not significantly associated with agitation (rs = -0.85, p = 0.74), pain (rs = 0.31, p = 0.23) or respiratory tract secretions (rs = -0.34, p = 0.19). Conclusions: This is the first study to use bioimpedance to report a model (using clinical factors) to predict hydration status in advanced cancer. Our data demonstrates the feasibility of using an advance consent method to conduct research in dying people. This method can potentially improve the evidence base (and hence, quality of care) for the dying. Future BIA research can involve hydration assessment of cancers (according to type and stage) and associated variables (e.g., stage of illness, ethnicity and gender). Further work can

use BIA to identify clinically relevant outcomes for hydration studies and establish a core outcome set to evaluate how hydration affects symptoms and quality-of-life in cancer. Key message: What is already known about this topic? - Oral fluid intake decreases in people with advanced cancer, especially when they approach the dying phase of their illness. - There is inadequate evidence to support hydration assessment and decision making in the dying phase of illness. - It is important to understand which clinical factors are associated with hydration status in advanced cancer, to enable healthcare professionals, to evaluate hydration status and support clinical decision making. - Bioimpedance is a non-invasive technology, which has potential to identify clinically relevant variables for cancer hydration assessment. What this paper adds. - This is the first study to use bioimpedance to report a model (using clinical factors) to predict hydration status in advanced cancer. - The variables with combined significance for predicting hydration status were biological sex, appetite, dry mouth, dry axilla, sunken eyes, breathlessness and oedema. In the dying phase, hydration status did not significantly change compared to baseline, and hydration status was not significantly associated with survival. Implications for practice, theory or policy. - Further work can use bioimpedance to identify clinically relevant outcomes for hydration studies, to establish a core outcome set to evaluate how hydration affects symptoms and quality-of-life in cancer.

10. Maternal nutrition and its effects on fetal neurodevelopment

Authors: Reis, Álvaro Eustáquio de Matos;Teixeira, Ingrid Silva;Maia, Juliana Marino;Luciano, Lucas Augusto Almeida;Brandião, Lucas Marques;Silva, Maria Luíza Santos;Branco, Luiz G. S. and Soriano, Renato Nery

Publication Date: 2024

Journal: Nutrition (Burbank, Los Angeles County, Calif.) 125, pp. 112483

Abstract: Herein, we present a thorough examination of the impact of maternal nutrition on fetal and infant neurodevelopment, focusing on specific nutrients and their critical roles in perinatal and pediatric health. Through a comprehensive narrative review of the literature, this study highlights the importance of a balanced maternal diet rich in nutrients like eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), folic acid, iron, and iodine in shaping children's neurological functions. Key findings underscore the influence of maternal nutrition during pregnancy and the peri-gestational period on children's cognitive, motor, speech, and socio-emotional development. Deficiencies in essential nutrients, such as DHA, are linked to adverse long-lasting outcomes such as premature birth and intrauterine growth restriction, where a suitable intake of iron and folic acid is vital to prevent neural tube defects and promote healthy brain development. We highlight areas requiring further investigation, particularly regarding iodine's impact and the risks associated with alcohol consumption during pregnancy. In conclusion, this research sheds light on our current understanding of maternal nutrition and child neurodevelopment, offering valuable insights for health professionals and researchers.; **Competing Interests:** Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. (Copyright © 2024 Elsevier Inc. All rights reserved.)

11. The Future of Obesity Management through Precision Nutrition: Putting the Individual at the Center

Authors: Ulusoy-Gezer, Hande and Rakıcıoğlu, Neslişah

Publication Date: 2024

Journal: Current Nutrition Reports 13(3), pp. 455–477

Abstract: PURPOSE OF REVIEW: The prevalence of obesity continues to rise steadily. While obesity management typically relies on dietary and lifestyle modifications, individual responses to these interventions vary widely. Clinical guidelines for overweight and obesity stress the importance of personalized approaches to care. This review aims to underscore the role of precision nutrition in delivering tailored interventions for obesity management. RECENT FINDINGS: Recent technological strides have expanded our ability to detect obesity-related genetic polymorphisms, with machine learning algorithms proving pivotal in analyzing intricate genomic data. Machine learning algorithms can also predict postprandial glucose, triglyceride, and insulin levels, facilitating customized dietary interventions and ultimately leading to successful weight loss. Additionally, given that adherence to dietary recommendations is one of the key predictors of weight loss success, employing more objective methods for dietary assessment and monitoring can enhance sustained long-term compliance. Biomarkers of food intake hold promise for a more objective dietary assessment. Acknowledging the multifaceted nature of obesity, precision nutrition stands poised to transform obesity management by tailoring dietary interventions to individuals' genetic backgrounds, gut microbiota, metabolic profiles, and behavioral patterns. However, there is insufficient evidence demonstrating the superiority of precision nutrition over traditional dietary recommendations. The integration of precision nutrition into routine clinical practice requires further validation through randomized controlled trials and the accumulation of a larger body of evidence to strengthen its foundation. (© 2024. The Author(s).)

Sources Used:

The following databases are used in the creation of this bulletin: Amed, British Nursing Index, Cinahl & Medline.

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