Nutrition and Hydration
Current Awareness Bulletin
February 2020

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Title: Malnutrition risk and hospital-acquired falls in older adults: A cross-sectional, multicenter study.

Citation: Geriatrics & gerontology international; Feb 2020

Author(s): Eglseer, Doris; Hoedl, Manuela; Schoberer, Daniela

Aim: To assess the relationship of malnutrition risk and in-hospital falls in a patient group of older hospitalized patients (65-79 and ≥80 years).

Methods: A cross-sectional, multicenter, point-prevalence study was conducted in 68 Austrian hospitals with 3702 hospitalized older patients. The relationship between malnutrition risk and falls was analyzed using univariate and multivariate binary logistic regression analyses. Data were analyzed separately for two age groups, patients were aged 65-79 years (n = 2320) and ≥80 years (n = 1382).

Results: Prevalence of hospital-acquired falls was 5.2%, and prevalence of risk of malnutrition was 24.3% (Malnutrition Universal Screening Tool) and 16.2% (definition using body mass index and weight loss). The univariate analysis showed significant associations of malnutrition risk and in-hospital falls for patients aged ≥80 years (odds ratio 2.1; 95% confidence interval 1.2-3.6) but not for patients aged 65-79 years. The multivariate logistic regression analysis did not show significant associations between malnutrition risk and hospital-acquired falls.

Conclusion: The results of this study show that malnutrition risk is a predictor for in-hospital falls in very old patients (≥80 years). In this patient group, the screening and assessment of nutritional status as well as nutritional interventions for the prevention/treatment of malnutrition risk should be considered as one important factor for successful fall prevention. Studies are necessary to assess the effect of nutritional interventions as part of a multifaceted fall-prevention program.

Title: Concurrent and predictive validity of the Mini Nutritional Assessment Short-Form and the Geriatric Nutritional Risk Index in older stroke rehabilitation patients.

Citation: Journal of Human Nutrition & Dietetics; Feb 2020; vol. 33 (no. 1); p. 12-22


Background: Malnutrition may worsen clinical outcomes in stroke patients. Few malnutrition screening tools have been validated in the rehabilitation setting. The present study aimed to assess the concurrent and predictive validity of two malnutrition screening tools.

Methods: We retrospectively collected scores for the Mini Nutritional Assessment Short-Form (MNA-SF) and the Geriatric Nutritional Risk Index (GNRI) in consecutive stroke patients aged ≥65 years in a rehabilitation hospital. Concurrent validity was confirmed against the European Society for Clinical Nutrition and Metabolism diagnostic criteria for malnutrition (ESPEN-DCM). Malnutrition risk within the ESPEN-DCM process was assessed using the Malnutrition Universal Screening Tool. Cut-off values with maximum Youden index, and with sensitivity (Se) >90% and specificity (Sp) >50%, were defined as appropriate for identification and screening of malnutrition, respectively. The Functional Independence Measure and discharge destination were used to explore predictive validity.

Results: Overall, 420 patients were analysed. Of these, we included 125 patients in the malnutrition group and 295 in the non-malnutrition group based on the ESPEN-DCM. Cut-off values for the identification and screening of malnutrition were 5 (Se: 0.78; Sp: 0.85) and 7 (Se: 0.96; Sp: 0.57) for the MNA-SF; 92 (Se: 0.74; Sp: 0.84) and 98 (Se: 0.93; Sp: 0.50) for
the GNRI, respectively. The GNRI predicted discharge to acute care hospital, whereas the MNA-SF did not predict all outcome measures.

**Conclusions:** The MNA-SF and the GNRI have a fair concurrent validity in stroke patients, although lower cut-off values than currently used were required for the MNA-SF. The GNRI exhibits good predictive validity for discharge destination.

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**Title:** Are hypohydrated older adults at increased risk of exhaustion?

**Citation:** Journal of Human Nutrition & Dietetics; Feb 2020; vol. 33 (no. 1); p. 23-30

**Author(s):** Anjo, I.; Amaral, T. F.; Afonso, C.; Borges, N.; Santos, A.; Moreira, P.; Padrão, P.

**Background:** Dehydration appears to affect muscle strength and weakness, although its influence on exhaustion remains unclear. The present study aimed to quantify the association between hydration status and exhaustion among older adults.

**Methods:** A cluster sampling approach was used, representing Portuguese older adults (≥65 years) according to age, sex, education level and region within the Nutrition UP65 cross-sectional study. A 24-h urine sample was collected to estimate free water reserve (FWR), which was categorised into tertiles according to sex. Subjects with incomplete 24-h urine and renal disease were excluded. From a sample size of 1500 subjects, 1143 were eligible. Exhaustion was self-reported according to the Center for Epidemiologic Studies Depression Scale. A logistic regression model was conducted to evaluate the association between FWR and exhaustion. Odds ratios and the respective 95% confidence intervals were calculated by sex and age.

**Results:** Free water reserve median (interquartile range) was 0.52 (0.68) L in women and 0.36 (0.77) L in men. Hypohydration affected 11.6% of women and 25.1% of men, whereas exhaustion was reported by 39.3% of women and 25.1% of men. After adjusting for confounders, women ≥80 years classified in the highest tertile of FWR showed a decreased risk of exhaustion (third tertile: odds ratio = 0.38; 95% confidence interval = 0.15–0.96) compared to women in the lowest FWR tertile. No such significant association was observed in women with <80 years and in men.

**Conclusions:** These results show an association between worse hydration status and exhaustion in older women, highlighting the need to implement further studies clarifying this association.

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**Title:** Identifying older people at risk of malnutrition and treatment in the community: prevalence and concurrent validation of the Patients Association Nutrition Checklist with 'MUST'.

**Citation:** Journal of Human Nutrition & Dietetics; Feb 2020; vol. 33 (no. 1); p. 31-37

**Author(s):** Murphy, J. L.; Aburrow, A.; Guestini, A.; Brown, R.; Parsons, E.; Wallis, K.

**Abstract:** The article discusses a cross-sectional study focusing on the validity of the malnutrition risk screening tools Patients Association Nutrition Checklist and Malnutrition Universal Screening Tool (MUST). According to the article, MUST consists of several categories including body mass index (BMI), weight loss, and acute disease effect score. 312 individuals (ages 65-84) from lunch clubs in Dorset and Hampshire, Southern England, participated in the study.
Title: Malnutrition Impacts Health-Related Quality of Life in Cirrhosis: A Cross-Sectional Study.

Citation: Nutrition in Clinical Practice; Feb 2020; vol. 35 (no. 1); p. 119-125

Author(s): Chiu, Elaine; Marr, Kaleb; Taylor, Lorian; Lam, Louisa; Stapleton, Melanie; Tandon, Puneeta; Raman, Maitreyi

Background: To explore the influence of nourishment state measured by various nutrition assessment tools (NATs) on health-related quality of life (HRQoL) in a pretransplant population with cirrhosis.

Methods: We collected demographic, nutrition assessment, and disease specific data on 81 patients. HRQoL was measured with the Short-Form 36 and divided into 8 subscales. Significant relationships between NATs and HRQoL were examined using independent sample t-tests, χ2 analyses, correlations, and multiple and logistic regression adjusted for age and gender.

Results: Study mean age was 54.2 years (SD 10.4 years), and 57% were male. Subjective Global Assessment (SGA) was significantly related to all HRQoL subscales, except bodily pain and mental health. In the adjusted regression models, general health, vitality, and social functioning were all significantly lower in patients with poorer nutrition status measured using SGA (adjusted R2 = 11%, β = −0.34, p < 0.01; adjusted R2 = 8%, β = −0.27, P < 0.05; and adjusted R2 = 12%, β = −0.38, P < 0.01, Q4 respectively). Physical functioning improved as hand grip strength increased (adjusted R2 = 20%, β = 0.36, P < 0.01). MELDNa demonstrated a significant negative relationship with role-emotional (adjusted R2 = 3%, β = 0.25, P < 0.05), and mid-arm circumference did not demonstrate any significant relationships with HRQoL.

Conclusions: Malnutrition assessed by SGA is associated with lower HRQoL in patients with cirrhosis. Future research should identify if nutrition interventions can effectively improve HRQoL in cirrhosis patients.

Title: A multicentre prospective audit of bedside hydration in hospital.

Citation: British Journal of Nursing; Jan 2020; vol. 29 (no. 1); p. 50-54

Author(s): Davidson, Joseph; Folkard, Samuel; Hinckley, Matthew; Uglow, Elizabeth; Wright, Oliver; Bloomfield, Thomas; Patel, Mehool

Introduction: Access to water at the bedside is a cornerstone of patient care. Among bedbound inpatients, water within reach at the bedside is a basic human dignity and one that ought not to be neglected.

Aim: The authors sought to identify the extent to which accessible hydration facilities were provided to a bedbound inpatient population.

Methods: A cross-sectional, point-prevalent audit of hospitalised medical inpatients across five centres was conducted. Data were collected between meal times and noted baseline demographics and admission details, adequacy of oral hydration provision at the bedside and, where provision was inadequate, factors associated with this.

Results: Across a total surveyed patient population of 559 we identified 138 patients who were bedbound. Among these bedbound patients, 6% (n=8) had no water provided at the bedside. However, 7 of these were deemed to be unable to swallow safely. In total, 44 (32%) of the 138 bedbound patients were unable to reach the water at their bedside; 18 of these patients would have been able to drink for themselves had the water been in reach.
**Conclusion:** there is significant room for improvement in ensuring patients who are immobile are able to reach drinking apparatus at the bedside. In the five centres surveyed, approximately one in five bedbound patients with no contraindication are unable to reach an essential means of hydration.

**Title:** Poor Oral Health as a Determinant of Malnutrition and Sarcopenia.

**Citation:** Nutrients; Dec 2019; vol. 11 (no. 12); p. 2898-2898

**Author(s):** Azzolino, Domenico; Passarelli, Pier Carmine; De Angelis, Paolo; Piccirillo, Giovan Battista; D'Addona, Antonio; Cesari, Matteo

**Abstract:** Aging is accompanied by profound changes in many physiological functions, leading to a decreased ability to cope with stressors. Many changes are subtle, but can negatively affect nutrient intake, leading to overt malnutrition. Poor oral health may affect food selection and nutrient intake, leading to malnutrition and, consequently, to frailty and sarcopenia. On the other hand, it has been highlighted that sarcopenia is a whole-body process also affecting muscles dedicated to chewing and swallowing. Hence, muscle decline of these muscle groups may also have a negative impact on nutrient intake, increasing the risk for malnutrition. The interplay between oral diseases and malnutrition with frailty and sarcopenia may be explained through biological and environmental factors that are linked to the common burden of inflammation and oxidative stress. The presence of oral problems, alone or in combination with sarcopenia, may thus represent the biological substratum of the disabling cascade experienced by many frail individuals. A multimodal and multidisciplinary approach, including personalized dietary counselling and oral health care, may thus be helpful to better manage the complexity of older people. Furthermore, preventive strategies applied throughout the lifetime could help to preserve both oral and muscle function later in life. Here, we provide an overview on the relevance of poor oral health as a determinant of malnutrition and sarcopenia.

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**Title:** Energy Expenditure in Older People Hospitalized for an Acute Episode.

**Citation:** Nutrients; Dec 2019; vol. 11 (no. 12); p. 2946-2946

**Author(s):** Bonnefoy, Marc; Gilbert, Thomas; Normand, Sylvie; Jauffret, Marc; Roy, Pascal; Morio, Béatrice; Cornu, Catherine; Roche, Sylvain; Laville, Martine

**Abstract:** Weight loss and worsening of nutritional state is a frequent downfall of acute hospitalization in older people. It is usually accepted that acute inflammation is responsible for hypercatabolism. However, several studies suggest, on the contrary, a reduction in resting energy expenditure (REE). This study aimed to obtain a reliable measure of REE and total energy expenditure (TEE) in older patients hospitalized for an acute episode in order to better assess patients’ energy requirements and help understand the mechanisms of weight loss in this situation. Nineteen hospitalized older patients (mean age 83 years) with C-reactive protein (CRP) level >20mg/L were recruited. REE and TEE were measured using gold standard methods of indirect calorimetry and doubly labeled water (DLW), respectively. REE was then compared to data from a previous study on aged volunteers from nursing homes who were free of an acute stressor event. Energy requirements measured by DLW were confirmed at 1.3 × REE. Energy intake covered the needs but did not prevent weight loss in these patients. TEE was not increased in hospitalized patients and was not influenced by inflammation, while the relationship between REE and inflammation was uncertain. Our results suggest that lean mass remains the major determinant of REE in
hospitalized older people and that weight loss may not be explained solely by a state of hypercatabolism.

Title: Hydration Management

Citation: Journal of Gerontological Nursing; Feb 2020; vol. 46 (no. 2); p. 19
Author(s): Mentes, Janet C; Gaspar, Phyllis M

Abstract: Optimal hydration is essential to health, yet many common health problems of older adults are exacerbated by suboptimal hydration, including falls, adverse medication events, and urinary tract infections to name a few. Understanding dehydration in older adults is difficult, and causes for inadequate intake are multifocal. The current article provides important care guidelines on assessing risk and providing essential interventions to prevent dehydration.

Title: Prevalence of Malnutrition in Older Hospitalized Cancer Patients: A Multicenter and Multiregional Study.

Citation: Journal of Nutrition, Health & Aging; Feb 2020; vol. 24 (no. 2); p. 166-171
Author(s): D’Almeida, Cristiane A.; Peres, W. A. F.; de Pinho, N. B.; Martucci, R. B.; Rodrigues, V. D.; Ramalho, A.

Background: Malnutrition is frequent in older cancer patients, with a prevalence that ranges from 25% to 85%. The aging process is associated with several physiological changes, which may have implications for nutritional status. Screening tools can be useful for identifying malnutrition status among older patients with cancer.

Methods: A hospital-based multicenter cohort study that included 44 institutions in Brazil. The Mini Nutritional Assessment-Short Form (MNA-SF) was administered to 3061 older hospitalized cancer patients within 48 hours of admission. The Kolmogorov-Smirnov test was used to test the sample distribution, considering sex, age range, calf circumference, body mass index, and MNA-SF score and classification. The categorical data were expressed by frequencies (n) and percentages (%)and compared using the chi-square test or Tukey test.

Results: According to the results of the MNA-SF, 33.4% of the patients were malnourished, 39.3% were at risk of malnutrition, and 27.3% were classified as having normal nutritional status. Length of hospital stay (in days) was found to be longer for those patients with a poorer nutritional status (malnourished: 7.07±7.58; at risk of malnutrition: 5.45±10.73; normal status: 3.9±5.84; p <0.001).

Conclusions: The prevalence of malnutrition and nutritional risk is high in older hospitalized cancer patients in all the regions of Brazil and a worse nutritional status is associated with a longer hospital stay. Using a low-cost, effective nutritional screening tool for older cancer patients will enable specialized nutritional interventions and avoid inequities in the quality of cancer care worldwide.

Title: Effect of early enteral nutrition in elderly patients with hip fracture during the perioperative period.

Citation: Journal of Back & Musculoskeletal Rehabilitation; Jan 2020; vol. 33 (no. 1); p. 109-117
**Author(s):** Shi, Hong; Lu, Jing-Hua; Wang, Shuang-Neng; Na, Qiang; Xu, Li-Fen; Hong, Jing-An

**Objective:** This study aimed to assess the effects of early enteral nutrition (EN) in elderly patients with hip fracture.

**Methods:** The patients were classified into two groups (with and without EN). We compared the pre- and postoperative albumin (ALB) and inflammatory marker levels of each group and the time spent in bed and quality of life 3 months after surgery between the two groups.

**Results:** The pre- and postoperative IL-6 levels of the experimental group (61.68 ± 51.80 pg/L) were lower than those of the control group (233.11 ± 206.31 pg/L) (P < 0.001). The experimental group spent a shorter period of time in bed (38.75 ± 14.26 days) in comparison to the control group (99.71 ± 56.87 days) (P < 0.001). Quality of life was better in the experimental group than in the control group (P < 0.001).

**Conclusions:** Early EN reduced the increment of postoperative IL-6 levels and improved healing postoperatively.

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**Title:** Enteral nutrition in critically ill adults: Literature review of protocols.

**Citation:** Nursing in Critical Care; Jan 2020; vol. 25 (no. 1); p. 24-30

**Author(s):** Jordan, Elizabeth A.; Moore, Shelley C.

**Background:** Managing nutrition in critically ill patients is an important intervention to promote healing. It is unknown whether the implementation of a protocol that guides enteral nutrition (EN) support is effective in improving the outcomes of critically ill patients. Furthermore, it is unknown whether a nurse-driven protocol is more or less effective than a protocol not managed by nurses.

**Aims and objectives:** The purpose of this literature review is to determine the current state of the science regarding evidence-based protocols for the administration and management of EN in critically ill patients.

**Search strategy, inclusion, and exclusion criteria:** Studies were identified by searching the Cumulative Index to Nursing and Allied Health Literature Plus database for the terms "enteral nutrition AND nursing." Studies with EN protocols for adult, critically ill patients published since 2011 were included. Studies without a protocol and those pertaining to paediatric, disease-specific, medical-surgical, or community-based populations were excluded. A total of 10 studies meeting the inclusion criteria were identified.

**Conclusions:** Defining and implementing both early initiation of EN and adequate titration to goal are important for achieving the maximum nutritional advantage. The highest benefit is also derived from identifying and delivering an individualized caloric and/or protein goal. A protocol increases standardization of practice in relation to these themes as well as the management of gastric residual volume, complications, and potentially for managing feeding interruptions. Because of the significant effects of nursing care on nearly all aspects of the management and delivery of EN, a nurse-driven protocol may yield higher compliance and greater effectiveness than a protocol that is not nurse driven. Relevance to clinical practice: Nurses are at the forefront of EN administration, although interprofessional collaboration remains paramount. Current practice must align with the best practice in the development and implementation of an EN protocol.
Title: Strategies to prevent dehydration in older people with dementia: a literature review.

Citation: Nursing older people; Jan 2020; vol. 32 (no. 1); p. 27-33
Author(s): Wilson, Kirsty; Dewing, Jan

Abstract: Dehydration is prevalent in hospitalised older people and residents in care homes, and older people with dementia are particularly at risk. A literature review was conducted to determine the evidence-based interventions used to prevent and manage dehydration in older people with dementia. Three databases were searched for relevant literature: Applied Social Sciences Index and Abstracts, Cumulative Index to Nursing and Allied Health Literature, and MEDLINE, alongside hand-searching. In-depth reading of the 12 studies included in this literature review was undertaken. Five themes were identified in relation to the hydration of older people: physical and social environment; staff communication strategies; access to drinks; drinking vessels; and individual preferences. The evidence suggests that dehydration in older people with dementia is an ongoing concern that needs to be addressed. There is evidence supporting the use of essential nursing interventions to improve hydration, such as coloured cups and verbal prompts, but less is known about the barriers preventing nurses from implementing these evidence-based interventions.


Citation: Nutrients; Jan 2020; vol. 12 (no. 1)
Author(s): Yi, Ho Chiou; Ibrahim, Zuriati; Abu Zaid, Zalina; Mat Daud, Zulfitri ‘Azuan; Md Yusop, Nor Baizura; Omar, Jamil; Mohd Abas, Mohd Norazam; Abdul Rahman, Zuwariah; Jamhuri, Norshariza

Abstract: Enhanced Recovery after Surgery (ERAS) with sole carbohydrate (CHO) loading and postoperative early oral feeding (POEOF) shortened the length of postoperative (PO) hospital stays (LPOHS) without increasing complications. This study aimed to examine the impact of ERAS with preoperative whey protein-infused CHO loading and POEOF among surgical gynecologic cancer (GC) patients. There were 62 subjects in the intervention group (CHO-P), which received preoperative whey protein-infused CHO loading and POEOF; and 56 subjects formed the control group (CO), which was given usual care. The mean age was 49.5 ± 12.2 years (CHO-P) and 51.2 ± 11.9 years (CO). The trial found significant positive results which included shorter LPOHS (78.13 ± 33.05 vs. 99.49 ± 22.54 h); a lower readmission rate within one month PO (6% vs. 16%); lower weight loss (-0.3 ± 2.3 kg vs. -2.1 ± 2.3 kg); a lower C-reactive protein-albumin ratio (0.3 ± 1.2 vs. 1.1 ± 2.6); preserved muscle mass (0.4 ± 1.7 kg vs. -0.7 ± 2.5 kg); and better handgrip strength (0.6 ± 4.3 kg vs. -1.9 ± 4.7 kg) among CHO-P as compared with CO. However, there was no significant difference in mid-upper arm circumference and serum albumin level upon discharge. ERAS with preoperative whey protein-infused CHO loading and POEOF assured better PO outcomes.
Title: Making hospital shops healthier: evaluating the implementation of a mandatory standard for limiting food products and promotions in hospital retail outlets.

Citation: BMC public health; Jan 2020; vol. 20 (no. 1); p. 132

Author(s): Stead, Martine; Eadie, Douglas; McKell, Jennifer; Sparks, Leigh; MacGregor, Andy; Anderson, Annie S

Background: The range of products stocked and their promotions in food retail outlets in healthcare settings can affect food choices by staff, patients and visitors. The innovative Scottish Healthcare Retail Standard (HRS) is a national mandatory scheme requiring all hospital food retail outlets to change the balance of food products stocked and their promotion to comply with nutritional criteria and promotional restrictions. The aim is to facilitate healthier food choices in healthcare settings. This study examined the implementation of HRS and the impact on foods stocked and promoted.

Methods: The study aimed to examine implementation process and changes to the retail environment in relation to food promotions and choice. A sample of hospital retail outlets (n = 17) including shops and trolley services were surveyed using a mixed methods design comprising: (a) structured observational audits of stock, layout and promotions (with a specific focus on chocolate and fruit product lines), and (b) face-to-face, semi-structured interviews with the shop manager or nominated members of staff (n = 32). Data were collected at Wave 1 (2016), at the beginning and during the early stages of HRS implementation; and Wave 2, 12 months later, after the HRS implementation deadline.

Results: All outlets, both commercial and not-for-profit, in the sample successfully implemented HRS. Implementation was reported to be more challenging by independent shop managers compared to chain store staff. Retail managers identified areas where more implementation guidance and support could have been provided. The number of chocolate product lines and promotions reduced substantially between Waves 1 and 2, but with no substantial increase in fruit product lines and promotions. Despite initial negative expectations of HRS's impact, managers identified some opportunities in the scheme and positive changes in the supply chain.

Conclusions: Positive changes in food retail outlets occurred after hospital shops were required to implement HRS. By creating a consistent approach across hospital shops in Scotland, HRS changed the food retail environment for hospital staff, visitors and patients. HRS provides a regulatory template and implementation learning points for influencing retail environments in other jurisdictions and settings.

Title: Improved meals service and reduced food waste and costs in medical institutions resulting from employment of a food service dietitian - a case study.

Citation: Israel journal of health policy research; Feb 2020; vol. 9 (no. 1); p. 5

Author(s): Yona, Orit; Goldsmith, Rebecca; Endevelt, Ronit

Background: A recurring problem in medical institutions is patients not always receiving food meeting their nutritional and medical needs. A proposed contributing factor is non-inclusion of dietitians in food service staff. Recently, positions for food service dietitians in hospitals were created. For the newly defined role of "Food Service Dietitian", comprehensive training courses were developed (70 dietitians participated).

Objective: To examine the impact of the addition of the role of a "Food Service Dietitian" in medical institutions on suitability of foods served, food costs and food waste.
Methods: A three years (2014-2017) national case study to examine the new role's impact was carried out, in 18 hospitals, nine of which employ a food service dietitian (intervention), and 9 without (control). The number of nutritional analyses of menus was checked, as was the extent of kitchen staff training, and how often night meals were served for all patients. Data were gathered regarding food costs and waste with respect to food distributed to staff and patients. Food costs savings and waste reduction were calculated, based on reduction in provision of unnecessary meals, at a cost of 18 NIS per day per meal.

Results: Kitchen staff training was carried out in all intervention institutions, and not in the controls. In most controls, nutritional analyses were not performed, whereas in the intervention hospitals, full analyses were performed and tailoring of menus to specific department requirements improved significantly. In most intervention hospitals, late night snacks were provided, this not being so in the controls. Total food cost savings of $229,569 per annum was seen in the six intervention hospitals, attributable to 4 factors: 1. Meals not delivered to fasting patients, or those receiving parenteral/enteral nutrition- cost savings of 328,500 NIS ($93,857) 2. Better tailoring and monitoring of food delivered to the wards and staff (bread, cheese, milk etc)- annual cost savings of 235,000 NIS ($67,142) in the hospitals with a food service dietitian. 3. Checking expiry dates of medical foods, and improved communication between the wards, the kitchen and the food distribution centers, has lessened food waste with savings of 5% from the medical food budget per annum of 40,000 NIS ($11,428). 4. As a result of dietitian-performed nutritional analyses, tailoring of food provided according to the patient's medical and nutrition needs was improved. In one hospital, after re-evaluation of serve sizes in high protein diets, sizes were reduced while retaining adequacy, with immediate cost savings of 200,000 NIS ($57,142) per annum.

Conclusions: Implementation of the new role of Food Service Dietitian led to cost savings and significant improvements in adherence to the nutritional care plan.

Title: Associations between hydration state and pregnancy complications, maternal-infant outcomes: protocol of a prospective observational cohort study.

Citation: BMC pregnancy and childbirth; Feb 2020; vol. 20 (no. 1); p. 82

Author(s): Zhang, Na; Zhang, Fan; Chen, Su; Han, Feng; Lin, Guotian; Zhai, Yufei; He, Hairong; Zhang, Jianfen; Ma, Guansheng

Background: Water requirements increases with gestational age. Insufficient water intake causes dehydration, which may adversely affect maternal health and birth outcomes. However, few related studies have been conducted. The purposes are to assess the water intake and hydration state among pregnant women, and to investigate the associations with pregnancy complications and maternal and infant outcomes.

Methods: A prospective observational cohort study will be applied. A total of 380 pregnant women will be recruited from the First Affiliated Hospital of Hainan Medical University. Hydration biomarkers and health outcomes will be tested during 15~17 weeks' gestation, 20~22 weeks' gestation, 30~32 weeks' gestation, during childbirth and 42 days after childbirth. Daily fluid intake will be collected using a 24-h fluid intake record for 7 consecutive days. A semi-quantified food frequency method will be used to assess food intake and water intake from food. Anthropometric measurement will be taken following standardized processes. Intracellular fluid (ICF) and extracellular fluid (ECF) will be measured using a body composition analyzer. Morning fasting urine and blood osmolality will be tested by laboratory physicians using an osmotic pressure molar concentration meter. Pregnancy complications will be assessed and diagnosed throughout pregnancy and childbirth. Maternal-infant outcomes will be monitored using related indicators and technologies. In order to explore the internal mechanism and interactions from the perspective of endocrine, pregnancy related hormones (estradiol, prolactin, progesterone) and the hydration-related
hormones (copeptin) will be tested during pregnancy. A mixed model of repeated measures ANOVA will be analyzed using SAS 9.2.

**Results:** The results may provide basic data on water intake among pregnant women. The association between hydration state and maternal-infant outcomes will also be explored.

**Conclusions:** This preliminary exploratory study findings will fill the gaps in the research on water intake, hydration and maternal health, birth outcomes, provide scientific reference data for updating recommendation on water adequate intake among pregnant women, and provide suggestion for developing water intake interventions.

**Trial Registration:** The protocol has been registered on the website of Chinese Clinical Trial Registry. The Identifier code is ChiCTR1800019284. The Registry date is 3 November, 2018. Registry name is "Study for the correlation between hydration state and pregnancy complications, maternal and infant outcomes during pregnancy".

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**Title:** Update on nutritional assessment and therapy in critical care.

**Citation:** Current opinion in critical care; Jan 2020

**Author(s):** Reintam Blaser, Annika; Rice, Todd W; Deane, Adam M

**Purpose of Review:** To summarize recent data regarding nutritional assessment and interventions in the ICU.

**Recent Findings:** Current methods to assess nutritional risk do not allow identification of ICU patients who may benefit from specific nutritional intervention. Early full energy delivery does not appear to improve outcomes at the population level. Specific nutrient composition of formula has been shown to improve glycemic outcomes in patients with hyperglycemia but patient-centered outcomes are unaffected.

**Summary:** Based on recent studies, full energy feeding early during critical illness has no measurable beneficial effect, and may even be harmful, when applied to entire populations. The mechanisms underlying this are unknown and remain proposed theories. Tools to assess nutritional risk in the ICU that identify patients who will benefit from a specific nutritional intervention are lacking. The optimal composition of feeds, and indications for specific interventions for enteral feeding intolerance remain uncertain.

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**Title:** Barriers to managing medications appropriately when patients have restrictions on oral intake.

**Citation:** Journal of evaluation in clinical practice; Feb 2020; vol. 26 (no. 1); p. 172-180

**Author(s):** To, The-Phung; Brien, Jo-Anne; Story, David A

**Rationale, Aims and Objectives:** Investigation of several serious adverse events in our organization highlighted that medications were managed inappropriately when patients have oral intake restrictions. The aim of this work was to identify the barriers to optimal medication management when patients have restrictions on their oral intake.

**Method:** Data were feedback and comments obtained between 2011 and 2014 from a hospital-wide quality assurance project. Data had not been purposefully collected and were in response to a general request for feedback regarding managing oral medications when patients have oral intake restrictions. Data came from a range of clinical staff and from various forums associated with the quality assurance project, including 37 presentations, 34 group meetings, and over 50 one-on-one meetings, as well as emails and other sources. Data were analysed using the thematic analysis approach. Data were coded inductively, and
the domains of the Theoretical Domains Framework were used to categorize the data. Subthemes and themes were then developed.

**Results:** Barriers could be broadly grouped into systems-level issues (organizational guidance and work environment) and the individual person-level issues (staff knowledge and beliefs). These barriers highlight the complexity of the medication management task. The lack of standardized guidance and consistent terminology regarding medication administration when patients have restrictions on oral intake, particularly when fasting or nil by mouth, were important systems factors, as were workflow issues and the “culture” of the environment in which staff practiced. Lack of knowledge about medication administration, social influences, and role interpretation were important individual person factors.

**Conclusion:** Systems- and individual person-level issues were significant contributors to inappropriate medication management when patients have oral intake restrictions. Many of the barriers may be addressed with systems approaches such as hospital-wide guidance that simplifies and standardize oral medication administration instructions, particularly regarding fasting and nil by mouth terminology.

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

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