LITERATURE SURVEY

1. Academy of Nutrition and Dietetics: Revised 2017 Scope of Practice for the Nutrition and Dietetics Technician, Registered

Authors:Denise Andersen,Shari Baird,Denise L.Chapel

The Academy of Nutrition and Dietetics (Academy) is the world's largest organization of food and nutrition professionals and the association that represents credentialed nutrition and dietetics practitioners-nutrition and dietetics technicians, registered (NDTRs) and registered dietitian nutritionists (RDNs). An NDTR's scope of practice in nutrition and dietetics has flexible boundaries to capture the depth and breadth of the individual's practice. The NDTR's practice expands with advances in many areas, including nutrition, food production, food safety, food systems management, health care, public health, community health, and information and communication technology. The Revised 2017 Scope of Practice for the NDTR reflects the position of the Academy on the essential role of the NDTR in the management and delivery of food and nutrition services. The scope of practice for the NDTR is composed of education and credentialing, practice resources, Academy Standards of Practice and Standards of Professional Performance, codes of ethics, accreditation standards, state and federal regulations, national guidelines, and organizational policy and procedures. The Revised 2017 Scope of Practice for the NDTR is used in conjunction with the Revised 2017 Standards of Practice in Nutrition Care and the Standards of Professional Performance for NDTRs. The Standards of Practice address activities related to direct patient and client care. The Standards of Professional Performance address behaviours related to the technical role of NDTRs. These standards reflect the minimum competent level of nutrition and dietetics practice and professional performance for NDTRs. A companion document addresses the scope of practice for the RDN.

2. Improving nutrition care and intake for older hospital patients through system-level dietary and mealtime interventions

Authors:Adrienne M Young,Merrilyn Banks

Background & aims Interventions such as oral nutritional supplements (ONS), fortified meals and mid-meals, feeding assistants and Protected Mealtimes have shown some impact on nutritional intake in research studies, but embedding them in practise remains challenging. This study monitored nutritional intake of older medical inpatients as dietary and mealtime interventions were progressively implemented into routine practise. Methods Series of three prospectively evaluated patient cohorts allowed comparison of nutritional intake of 320 consented medical inpatients aged 65 + years: cohort 1 (2007–8), cohort 2 (2009) and cohort 3 (2013–14) as nutrition care interventions were progressively introduced and embedded. Interventions focused on ‘assisted mealtimes’, fortified meals and mid-meals, and ONS. Energy and protein intake were calculated from visual plate waste of individual meal and mid-meal components on day 5 of admission. Nutrition care processes were evaluated by mealtime audits of diet type, assistance and interruptions on the same day. One-way ANOVA and chi square tests were used for comparison between cohorts. Results Significant, progressive improvements in energy and protein intake were seen between cohorts (energy: cohort 1: 5073 kJ/d; cohort 2: 5403 kJ/d; cohort 3: 5989 kJ/d, $p = 0.04$; protein: cohort 1: 48 g/d, cohort 2: 50 g/d, cohort 3: 57 g/d, $p = 0.02$). Greater use of fortified meals and mid-meals and sustained improvements in mealtime assistance likely contributed to these improvements. Conclusions Multi-faceted system-level approach to nutrition care, including changes to dietary and mealtime care processes, was associated with measurable and sustained improvements in nutritional intake of older inpatients over a seven year period.

3. Use of hand grip strength in nutrition risk screening of older patients admitted to general surgical wards

Authors:Angela Byrnes,Alison Mudge,Adrienne M Young

Aim Hand grip strength (HGS) has been proposed as an indicator of nutritional status that is objective, requires minimal assessor training and is quick to administer, making it attractive for use in the acute setting. This study aimed to determine the discriminatory ability of impaired HGS to screen for malnutrition in an older hospital population and assess the added value of combining this with existing screening tools. Methods Measures were undertaken during acute admission in patients ≥65 years admitted to general surgical wards. Impaired HGS was defined as a mean value below the lower limit of the 95% CI of population norms and observed HGS standardised as a percentage of this value. Nutritional risk was assessed using the Malnutrition Screening Tool (MST) and malnutrition defined as Patient-Generated Subjective Global Assessment (PG-SGA) rating B or C. Discriminatory ability of impaired HGS to identify malnourished patients was tested using the area under the receiver operating characteristic curve (AUC). Results Seventy-five patients (mean age: 74.0 (SD 6.7) years, 60% male) were recruited. Impaired HGS did not accurately identify malnutrition (AUC (95% CI): 0.41 (0.25–0.58), P < 0.001), nor did it improve discriminatory ability of the MST (AUC (95% CI), MST: 0.83 (0.71–0.95), P = 0.32; MST/HGS combined: 0.68 (0.51–0.86), P = 0.035). Conclusions HGS was not found to be suitable in screening older inpatients for malnutrition during admission to surgical wards. As such, screening for nutrition risk using an existing validated tool to identify patients for further in-depth nutritional assessment by an appropriately trained clinician remains the preferred method.

4. Recognition by medical and nursing professionals of malnutrition and risk of malnutrition in elderly hospital patients

Authors:Naomi E.ADAMS,Michael MURRAY

Objective: To determine the prevalence of malnutrition in a population of elderly hospitalised patients and to explore health professionals' perceptions and awareness of signs and risks of malnutrition and treatment options available.
Subjects and design: One hundred elderly patients and 57 health professionals from medical wards of a tertiary teaching hospital. Quantitative and qualitative study design using a validated malnutrition assessment tool (Mini Nutritional Assessment) and researcher-designed questionnaire to assess health professionals' knowledge of nutrition risk factors.
Main outcome measures: Mini Nutritional Assessment score, nutrition risk category and themes in health professionals' knowledge and awareness of malnutrition and its risk factors.
Results: Thirty per cent of patients were identified as malnourished while 61% were at risk of malnutrition. Documentation by health professionals of two major risk factors for malnutrition—recent loss of weight and appetite—were poor with only 19% and 53% of patients with actual loss of weight or appetite, respectively, identified by staff and only 7% and 9% of these patients, respectively, referred for dietetic assessment. While health professionals' knowledge of important medical risk factors for malnutrition was good, their knowledge of malnutrition risk factors such as recent loss of weight and loss of appetite was poor. Medical staff focused on biochemical factors when assessing nutrition status, while nursing staff focused on skin integrity and turgor.
Conclusion: Malnutrition in elderly hospitalised patients remains a significant problem with low rates of recognition and referral by medical and nursing staff. Considerable scope exists to develop training and education tools and to implement an appropriate nutrition screening policy to improve referral rates to dietitians.

5. Implementing best practice in hospital multidisciplinary nutritional care: An example of using the knowledge-to-action process for a research program

Authors:Celia V Laur,Heather Keller

Background: Prospective use of knowledge translation and implementation science frameworks can increase the likelihood of meaningful improvements in health care practices. An example of this creation and application of knowledge is the series of studies conducted by and with the Canadian Malnutrition Task Force (CMTF). Following a cohort study and synthesis of evidence regarding best practice for identification, treatment, and prevention of malnutrition in hospitals, CMTF created an evidence-informed, consensus-based pathway for nutritional care in hospitals. The purpose of this paper is to detail the steps taken in this research program, through four studies, as an example of the knowledge-to-action (KTA) process.
The KTA process: The KTA process includes knowledge creation and action cycles. The steps of the action cycle within this program of research are iterative, and up to this point have been informed by three studies, with a fourth underway. The first study identified the magnitude of the malnutrition problem upon admission to hospital and how it is undetected and undertreated (study 1). Knowledge creation resulted in an evidence-based pathway established to address care gaps (study 2) and the development of monitoring tools (study 3). The study was then adapted to local context: focus groups validated face validate the evidence-based pathway; during the final phase, study site implementation teams will continue to adapt the pathway (studies 2 and 4). Barriers to implementation were also assessed; focus groups and interviews were conducted to inform the pathway implementation (studies 1, 2, and 4). In the next step, specific interventions were selected, tailored, and implemented. In the final study in this research program, plan-do-study-act cycles will be used to make changes and to implement the pathway (study 4). To monitor knowledge use and to evaluate outcomes, audits, staff surveys, patient outcomes, etc will be used to record process evaluations (studies 3 and 4). Finally, a sustainability plan will be incorporated into the final study of the program (study 4) to sustain knowledge use. Discussion: Use of frameworks can increase the likelihood of meaningful and sustainable improvements in health care practice. The example of this program of research demonstrates how existing evidence has been used to identify, create, and adapt knowledge, and how multidisciplinary teams have been used to effect changes in the hospital setting. Conclusion: Effective implementation is essential in nutritional health care, and this multidisciplinary program of research

provides an example of how the KTA process can facilitate implementation and promote sustainability.

6. Evaluation protocol of a multi-site implementation of the Integrated Nutrition Pathway for Acute Care

Authors:Heather Keller,Jack Bell,Renata F Valaitis

Background Nutrition care in hospitals is often haphazard, and malnourished patients are not always readily identified and do not receive the care they require. The Integrated Nutrition Pathway for Acute Care (INPAC) is an algorithm designed to improve the prevention, detection and treatment of malnutrition in medical and surgical patients. More-2-Eat is an evaluation of the implementation of INPAC care activities (e.g. screening) in five diverse medical units from different hospitals in Canada. The primary purpose is to understand how tailored implementation affects INPAC uptake and factors that impact this implementation. The principal outcome is a toolkit that can provide guidance to others. Methods This participatory action research uses a before-after time series design to address several research questions focused on implementation and uptake of INPAC (e.g., Does the implementation of INPAC improve the detection of malnutrition? Do nutrition care related knowledge, attitudes and practices scores of unit staff change with the implementation of INPAC?). A six-month developmental phase where baseline data were collected is followed by a twelve-month implementation phase and a three-month sustainability phase. Qualitative and quantitative data are collected concurrently, and to address key research questions, these data are merged. Quantitative data are collected on-site by trained local dietitians and include chart audits of nutrition care practices and a more detailed assessment of recruited patients on quality of life, disability, frailty, food intake and barriers to food intake. Thirty-day post discharge follow up for these patients occurs by researchers via a telephone interview at three time points within baseline and implementation phases, to ascertain the same and other outcomes (e.g. readmission to hospital). Qualitative data include focus groups and key informant interviews completed by researchers, monthly teleconferences among the sites and site-completed forms that track implementation activities. Resource utilization of dietitian time for various care activities (e.g. assessment) and staff time to assist patients at mealtimes is also collected. DiscussionMore-2-Eat provides an example of how implementation can be tailored when a care algorithm is embedded into routine practice. The project also highlights important learning points with respect to data

collection and techniques to support implementation. Trial registration Retrospectively registered ClinTrials.gov Identifier: NCT02800304 June 7, 2016.

7. Dietetics in the digital age: The impact of an electronic medical record on a tertiary hospital dietetic department

Authors:Jordan McCamley,Angela Vivanti

Aim The present study aimed to assess the impact of a hospital-wide electronic medical record (EMR) on the way dietitians collect routine data for their assessments and its impact on their clinical documentation and service provision. Methods Data were collected retrospectively from the following sources: interdepartmental chart audit, the EMR itself (nutrition diagnosis), National Health Roundtable database (admissions requiring nutrition events) and the hospital-wide Pressure Injury Prevention Audits (height, weight and malnutrition screening). Results There were improvements in medical record accessibility (76.4% pre vs 100% post, $P < 0.001$), awareness of medical alerts (82.5% unaware pre vs 34.5% unaware post) and legibility of documentation (53.8% pre vs 99.2% post, $P < 0.001$). Improvements in accessing medical charts under 1 minute also occurred (65.8% pre vs 99.2% post, $P < 0.001$). The percentage of nutrition diagnoses resolved during admission increased from 20.0% in February 2016 to 34.0% in August 2017. A 72.0% increase in admissions requiring nutrition interventions was found with 4075 admissions pre- and 7035 post-EMR implementation. Time spent per nutrition event reduced by 22.0% (118 minutes pre and 92 minutes post). Hospital audit data revealed mean height and weight collected increased from 79.3 ± 3.8% (n = 8 audits totalling 3041/3834 patients) to 86.0 ± 2.6% (n = 5 audits totalling, 2544/2958 patients) post-EMR with malnutrition screening completion increasing from 57.5% to 74.0%. Conclusions Findings indicate that EMR implementation has the potential to benefit the dietetic profession due to the potential to enhance the capacity and efficiency of dietetic departments.

8. Changing nutrition care practices in hospital: A thematic analysis of hospital staff perspectives

Authors:Heather Keller,Jack Bell,Renata F Valaitis

Background Many patients are admitted to hospital and are already malnourished. Gaps in practice have identified that care processes for these patients can be improved. Hospital staff, including management, needs to work towards optimizing nutrition care in hospitals to improve the prevention, detection and treatment of malnutrition. The objective of this study was to understand how staff members perceived and described the necessary ingredients to support change efforts required to improve nutrition care in their hospital. Methods A qualitative study was conducted using purposive sampling techniques to recruit participants for focus groups (FG) (n = 11) and key informant interviews (n = 40) with a variety of hospital staff and management. Discussions based on a semi-structured schedule were conducted at five diverse hospitals from four provinces in Canada as part of the More-2-Eat implementation project. One researcher conducted 2-day site visits over a two-month period to complete all interviews and FGs. Interviews were transcribed verbatim while key points and quotes were taken from FGs. Transcripts were coded line-by-line with initial thematic analysis completed by the primary author. Other authors (n = 3) confirmed the themes by reviewing a subset of transcripts and the draft themes. Themes were then refined and further detailed. Member checking of site summaries was completed with site champions. Results Participants (n = 133) included nurses, physicians, food service workers, dietitians, and hospital management, among others. Discussion regarding ways to improve nutrition care in each specific site facilitated the thought process during FG and interviews. Five main themes were identified: building a reason to change; involving relevant people in the change process; embedding change into current practice; accounting for climate; and building strong relationships within the hospital team. Conclusions Hospital staff need a reason to change their nutrition care practices and a significant change driver is perceived and experienced benefit to the patient. Participants described key ingredients to support successful change and specifically engaging the interdisciplinary team to effect sustainable improvements in nutrition care. Trial registration Retrospectively registered ClinicalTrials.gov Identifier: NCT02800304, June 7, 2016.

9. Interventions to prevent and treat malnutrition in older adults to be carried out by nurses: A systematic review

Authors:Debbie ten Cate,Roelof G A Ettema,Jack J.Bell

Aims and objectives To identify interventions to prevent and treat malnutrition in older adults, which can be integrated in nursing care, and to evaluate the effects of these interventions on outcomes related to malnutrition. Background Older adults are at great risk for malnutrition, which can lead to a number of serious health problems. Nurses have an essential role in nutritional care for older adults. Due to a lack of evidence for nursing interventions, adequate nursing nutritional care still lags behind. Design Systematic review. Method We searched for and included randomised controlled trials on interventions, which can be integrated in nursing care for older adults, to prevent and treat malnutrition. We assessed the risk of bias with the Cochrane tool and evidence for outcomes with the GRADE. The PRISMA statement was followed for reporting. Results We included 21 studies of which 14 studies had a high risk of bias. Identified interventions were oral nutritional supplements, food/fluid fortification or enrichment, dietary counselling and educational interventions. In evaluating the effects of these interventions on 11 outcomes related to malnutrition, significant and nonsignificant effects were found. We graded the certainty of evidence as very low to moderate. Conclusion Although slight effects were found in protein intake and body mass index, there is no convincing evidence about the effectiveness of the four identified interventions. There seems no harm in using these interventions, although it should be kept in mind that the evidence is sparse. Therefore, there is a need for high-quality research in building evidence for interventions in nursing nutritional care. Relevance to clinical practice Nurses can safely provide oral nutritional supplements and food/fluid fortification or enrichment, and give dietary counselling and education to older adults, as they are well placed to lead the essential processes of nutritional care to older adults.

10. Energy and protein intake increases with an electronic bedside spoken meal ordering system compared to a paper menu in hospital patients

Authors:Kirsty Maunder,Peter Williams,Karen Walton

Background and aims: Electronic bedside spoken meal ordering systems (BMOS) have the potential to improve patient dietary intakes, but there are few published evaluation studies. The aim of this study was to determine changes in the dietary intake and satisfaction of hospital patients, as well as the role of the Nutrition Assistant (NA), associated with the implementation of an electronic BMOS compared to a paper menu. Methods: This study evaluated the effect of a BMOS compared to a paper menu at a 210-bed tertiary private hospital in Sydney during 2011-2012. Patient dietary intake, patient satisfaction and changes in NA role were the key outcomes measured. Dietary intake was estimated from observational recordings and photographs of meal trays (before and after patient intake) over two 48 h periods. Patient satisfaction was measured through written surveys, and the NA role was compared through a review of work schedules, observation, time recordings of patient contact, written surveys and structured interviews. Results: Baseline data were collected across five wards from 54 patients (75% response rate) whilst using the paper menu service, and after BMOS was introduced across the same five wards, from 65 patients (95% response rate). Paper menu and BMOS cohorts' demographics, self-reported health, appetite, weight, body mass index, dietary requirements, and overall foodservice satisfaction remained consistent. However, 80% of patients preferred the BMOS, and importantly mean daily energy and protein intakes increased significantly (paper menu versus BMOS): 6273 kJ versus 8273 kJ and 66 g versus 83 g protein; both $p < 0.05$. No additional time was required for the NA role, however direct patient interaction increased significantly ($p < 0.05$), and patient awareness of the NA and their role increased with the BMOS. Conclusions: The utilisation of a BMOS improved patient energy and protein intake. These results are most likely due to an enhancement of existing NA work processes, enabling more NA time with patients, facilitating an increase in patient participation and satisfaction with the service.