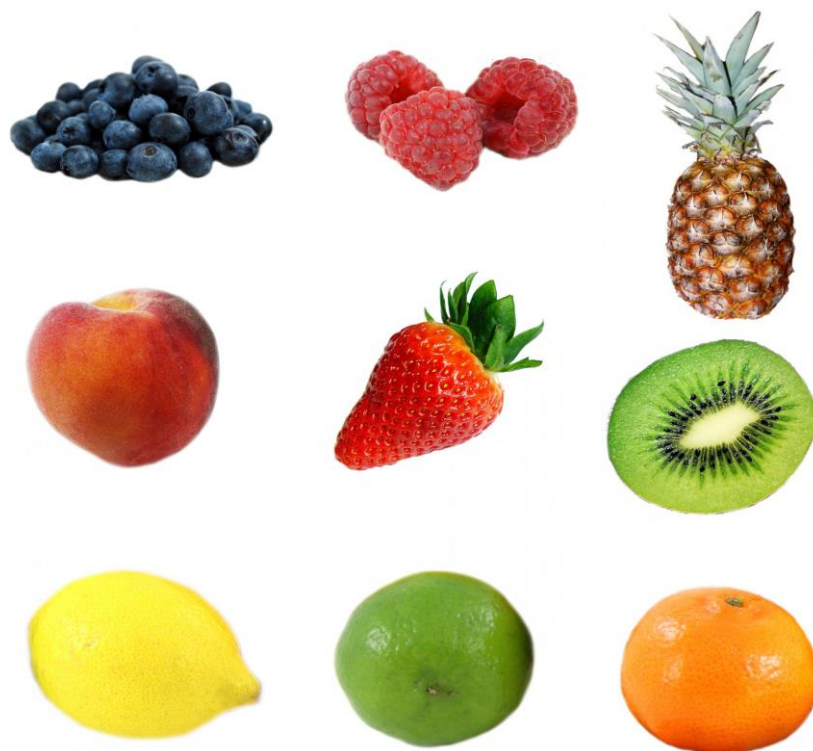


# Paediatric Nutrition

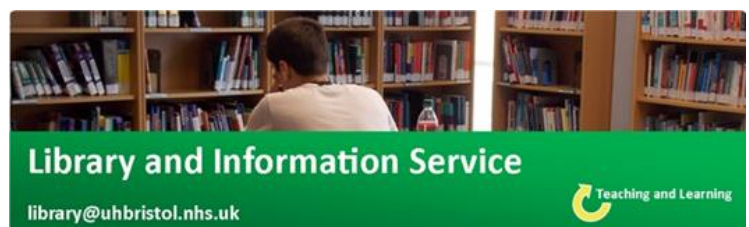
## Evidence Update



## August 2017

(Quarterly)

Respecting everyone  
Embracing change  
Recognising success  
Working together  
**Our hospitals.**



# Training Calendar 2017

*All sessions are one hour*

## August (12.00-13.00)

Tue 15th     Interpreting Statistics

Thu 24th     Critical Appraisal

## September (13.00-14.00)

Fri 1st       Literature Searching

Mon 4th       Critical Appraisal

Tue 12th      Interpreting Statistics

Wed 20th     Literature Searching

Thu 28th      Critical Appraisal

## Your Outreach Librarian – Helen Pullen

Whatever your information needs, the library is here to help. Just email us at

[library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

**Outreach:** Your Outreach Librarian can help facilitate evidence-based practice for all in the team, as well as assisting with academic study and research. We also offer one-to-one or small group training in **literature searching, critical appraisal and medical statistics**. Get in touch: [library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

**Literature searching:** We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one-to-one session where we can guide you through the process of creating a well-focused literature research. Please email requests to [library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

# Contents

Journal Tables of Contents.....	3
Updates: NICE, Cochrane, UpToDate, NHS 'Behind the Headlines' .....	5
Database Articles.....	6-11
Library Opening Times .....	12

## Journal Tables of Contents

Click on the **journal title (+ Ctrl)** for the most recent tables of contents.

If you would like any of the papers in full text then please email the library:

[library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

### American Journal of Clinical Nutrition

August 1, 2017, Volume 106, Issue 2

### Journal of Human Nutrition & Dietetics

August 2017, Volume 30, Issue 4

### Journal of the Academy of Nutrition and Dietetics

August 2017, Volume 117, Issue 8

### Gut

September 2017, Volume 66, Issue 9

### BMJ

August 2017

### Lancet

August 12, 2017, Volume 390, Issue 10095



# KnowledgeShare

## **What is KnowledgeShare?**

Provides regular, targeted, personalised evidence updates to staff, based on their specific professional interests. Subject-specific bulletins can also be produced.

## **Targeted evidence updates**

These are individualised, based on a staff member's interest in particular conditions or lifestyle factors, age groups, settings of care, interventions and management topics.

## **Collaboration and knowledge sharing**

As more library and knowledge services join KnowledgeShare it becomes more powerful for sharing evidence and generating communities of practice.

[Register here](#)

Or contact the Library for further information

## Updates

**NICE** National Institute for  
Health and Care Excellence

[Systematic Review: Nutrition and Physical Activity in the Management of Paediatric Nonalcoholic Fatty Liver Disease](#)

Source: [PubMed](#) - 01 August 2017 - Publisher: Journal Of Pediatric Gastroenterology And Nutrition

...aim of the study was to evaluate efficacy of nutrition and physical activity interventions in the clinical management of paediatric nonalcoholic fatty liver disease. The prevalence of paediatric nonalcoholic fatty liver disease continues to...

[Read Summary](#)



[Ketogenic diet for primary brain and spinal cord tumours](#) Online Publication Date: June 2017

Calleigh H Reardon, Karolis Zienius, Susan Wood, Robin Grant, Matthew Williams

[UpToDate](#)<sup>®</sup>

Searched resource but nothing to add

### Other – NHS ‘Behind the Headlines’, Guidance etc

[Concerns about alleged 'harmful' arsenic levels in baby rice cakes](#)

Friday May 5 2017

"Almost half of baby rice food products contain illegal levels of inorganic arsenic despite new regulations set by the EU, according to researchers," ITV News reports...

## Database Articles

Below is a selection of articles related to paediatric nutrition that were recently added to the healthcare databases. If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: [library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

### 1. Impact of the structure and dose of protein intake on clinical and metabolic outcomes in critically ill children: A systematic review.

**Author(s):** Hauschild, Daniela B; Ventura, Julia C; Mehta, Nilesh M; Moreno, Yara M F

**Source:** Nutrition (Burbank, Los Angeles County, Calif.); Sep 2017; vol. 41 ; p. 97-106

**Abstract:**OBJECTIVEThe aim of this study was to describe the effects of structure/type and total amount of protein intake on protein balance and clinical outcomes in critically ill children.METHODSWe conducted a systematic review of relevant literature on Embase, PubMed/Medline, Web of Science, Scopus, and Latin American and Caribbean Health Sciences. A partial gray literature search was undertaken and the reference lists of the selected articles were searched manually. Observational and clinical trials that evaluated the total protein intake, structure of the protein source, or both, in critically ill children were included. Nitrogen balance and clinical outcomes (mortality, length of stay, and duration of mechanical ventilation) were the main outcomes of interest.RESULTSWe found 18 eligible studies, of which 17 assessed the quantity and one described protein structure in relation to the outcomes. In all, 2118 pediatric critically ill patients 1.1 g/kg, especially >1.5 g/kg, was associated with positive protein balance and lower mortality.CONCLUSIONIn critically ill children, total daily protein intake >1.1 g/kg was associated with positive effects on clinical outcomes and protein balance. The existing data are not sufficient for determining the optimal structure of protein delivered by enteral route in critically ill children.

### 2. Assessing Selenium, Manganese, and Iodine Status in Pediatric Patients Receiving Parenteral Nutrition.

**Author(s):** Johnsen, Jacob Clarke; Reese, Susan Anne; Mackay, Mark; Anderson, Collin R; Jackson, Daniel; Paul, Irasema Libertad

**Source:** Nutrition in clinical practice : official publication of the American Society for Parenteral and Enteral Nutrition; Aug 2017; vol. 32 (no. 4); p. 552-556

**Abstract:**BACKGROUNDPediatric patients who are receiving parenteral nutrition (PN) unsupplemented with trace minerals can become deficient. Due to shortages in trace mineral products and the 2004 American Society for Parenteral and Enteral Nutrition report stating that individualized trace element supplementation may be warranted, a review was conducted concerning the trace minerals selenium (Se), manganese (Mn), and iodine (I).METHODA retrospective review of pediatric patients receiving PN that contained Se and Mn was conducted to determine if a difference existed between them and patients receiving PN without Se and Mn. Statistical analysis was done to assess a difference between trace mineral levels and the time to deficiency between supplemented and unsupplemented patients. Unsupplemented I patients had urine I levels assessed to determine deficiencies in patients receiving PN.RESULTSPlasma Se levels were measured at a mean of 20 days for supplemented patients (n = 131) and 19 days for nonsupplemented patients (n = 57) with no difference between groups ( P = .2973). Plasma Mn

levels were measured at a mean of 28 days, showing no statistical difference ( $P = .721$ ). Of the 177 nonsupplemented I patients, 74% demonstrated I deficiencies without supplementation. **CONCLUSION** Time to the development of a Se, Mn, or I deficiency is important to guide supplementation of exclusive PN in children when trace mineral products are short in supply. Our retrospective experience supports assessment of the trace minerals Se at 21 days and Mn at 30 days. It also suggests that some pediatric patients receiving PN are deficient in I.

### **3. Early Life Protein Intake: Food Sources, Correlates, and Tracking across the First 5 Years of Life.**

**Author(s):** Campbell, Karen J; Abbott, Gavin; Zheng, Miaobing; McNaughton, Sarah A

**Source:** Journal of the Academy of Nutrition and Dietetics; Aug 2017; vol. 117 (no. 8); p. 1188

**Abstract:** **BACKGROUND** High consumption of protein has been associated with accelerated growth and adiposity in early childhood. **OBJECTIVE** To describe intake, food sources, correlates, and tracking of protein in young children. **DESIGN** Secondary analysis of Melbourne Infant Feeding Activity and Nutrition Trial (InFANT). Dietary data were collected using three 24-hour dietary recalls at ages 9 and 18 months as well as 3.5 and 5 years. **PARTICIPANTS/SETTING** First-time mothers and their child ( $n=542$ ) participated in an 18-month intervention to prevent childhood obesity and the cohort was followed-up with no intervention when children were aged 3.5 and 5 years. **MAIN OUTCOME MEASURES** Protein intake, food sources, correlates, and tracking of protein. **STATISTICAL ANALYSES PERFORMED** Child and maternal correlates of protein intake were identified using linear regression and tracking of protein intake was examined using Pearson correlations of residualized protein scores between time points. **RESULTS** Mean protein (grams per day) intake was  $29.7 \pm 11.0$ ,  $46.3 \pm 11.5$ ,  $54.2 \pm 13.8$ , and  $60.0 \pm 14.8$  at 9 and 18 months and 3.5 and 5 years, respectively. Protein intakes at all ages were two to three times greater than age-appropriate Australian recommendations. The primary source of protein at 9 months was breast/formula milk. At later ages, the principal sources were milk/milk products, breads/cereals, and meat/meat products. Earlier breastfeeding cessation, earlier introduction of solids, high dairy milk consumption ( $\geq 500$  mL), and high maternal education were significant predictors of high protein intake at various times ( $P < 0.05$ ). Slight tracking was found for protein intakes at 9 months, 18 months, and 5 years ( $r = 0.16$  to  $0.21$ ;  $P < 0.01$ ). **CONCLUSION** This study provides unique insights into food sources and correlates of young children's high protein intakes, and confirms that early protein intakes track slightly up to age 5 years. These findings have potential to inform nutrition interventions and strategies to address high protein intakes and protein-related obesity risk.

### **4. European Society for Paediatric Gastroenterology, Hepatology and Nutrition Guidelines for the Evaluation and Treatment of Gastrointestinal and Nutritional Complications in Children With Neurological Impairment.**

**Author(s):** Romano, Claudio; van Wynckel, Myriam; Hulst, Jessie; Broekaert, Ilse; Bronsky, Jiri; Dall'Oglio, Luigi; Mis, Nataša F; Hojsak, Iva; Orel, Rok; Papadopoulou, Alexandra; Schaeppi, Michela; Thapar, Nikhil; Wilschanski, Michael; Sullivan, Peter; Gottrand, Frédéric

**Source:** Journal of pediatric gastroenterology and nutrition; Aug 2017; vol. 65 (no. 2); p. 242-264

**Abstract:** **OBJECTIVES** Feeding difficulties are frequent in children with neurological impairments and can be associated with undernutrition, growth failure, micronutrient deficiencies, osteopenia, and nutritional comorbidities. Gastrointestinal problems including gastroesophageal reflux disease, constipation, and dysphagia are also frequent in this population and affect quality of life and nutritional status. There is currently a lack of a systematic approach to the care of these patients. With this report, European Society of Gastroenterology, Hepatology and Nutrition aims to develop uniform guidelines for the management of the gastroenterological and nutritional problems in

children with neurological impairment. **METHODS** Thirty-one clinical questions addressing the diagnosis, treatment, and prognosis of common gastrointestinal and nutritional problems in neurological impaired children were formulated. Questions aimed to assess the nutritional management including nutritional status, identifying undernutrition, monitoring nutritional status, and defining nutritional requirements; to classify gastrointestinal issues including oropharyngeal dysfunctions, motor and sensory function, gastroesophageal reflux disease, and constipation; to evaluate the indications for nutritional rehabilitation including enteral feeding and percutaneous gastrostomy/jejunostomy; to define indications for surgical interventions (eg, Nissen Fundoplication, esophagogastric disconnection); and finally to consider ethical issues related to digestive and nutritional problems in the severely neurologically impaired children. A systematic literature search was performed from 1980 to October 2015 using MEDLINE. The approach of the Grading of Recommendations Assessment, Development, and Evaluation was applied to evaluate the outcomes. During 2 consensus meetings, all recommendations were discussed and finalized. The group members voted on each recommendation using the nominal voting technique. Expert opinion was applied to support the recommendations where no randomized controlled trials were available.

### **5. Growth and morbidity of extremely preterm infants after early full enteral nutrition.**

**Author(s):** Maas, Christoph; Franz, Axel R; Krogh, Stefanie von; Arand, Jörg; Poets, Christian F

**Source:** Archives of disease in childhood. Fetal and neonatal edition; Jul 2017

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

**Abstract:** **OBJECTIVES** To evaluate feasibility and consequences of accelerated feeding advancement on short-term outcomes in extremely low gestational age neonates (ELGANs) who stayed in our institution for >28 days. **METHODS** Retrospective single-centre cohort analysis covering the years 2011-2013. Data are presented as median (IQR). **RESULTS** Infants' (n=77) birth weight was 745 (640 to 960) g and gestational age at birth 26.7 (25.1 to 27.4) weeks. Full enteral feeds were attained by postnatal day 7 (5 to 11). Weight gain from birth to discharge was 14.3 (13.3 to 16.1) g/kg/day, change in SD score for weight -0.03 (-0.55 to 0.46) and 0.09 (-0.78 and 0.82) for head circumference. Rates of necrotising enterocolitis and spontaneous intestinal perforation in all ELGANs admitted during the study period were 3.1% and 9.4%, respectively. **CONCLUSIONS** This cohort of ELGANs showed good weight gain and head growth after early full enteral nutrition. The impact of this feeding practice on neonatal morbidity and long-term outcome remains to be tested in adequately powered randomised trials.

### **6. Improving the quality of nutrition in pediatric trauma.**

**Author(s):** Wang, Alice; Pelletier, Helena; Calligan, Diana; Coates, Angela; Allison Bailey, Karen

**Source:** International journal of health care quality assurance; Jul 2017; vol. 30 (no. 6); p. 539-544

**Abstract:** Purpose Nutrition plays a key role in the recovery of pediatric trauma patients. A catabolic state in trauma patients may hinder recovery and inadequate nutrition may increase morbidity, mortality and length of hospital stay. The purpose of this paper is to review the current nutrition support practices for pediatric trauma patients at McMaster Children's Hospital (MCH), describe patient demographics and identify areas to improve the quality of patient care.

**Design/methodology/approach** A retrospective chart review was conducted on pediatric trauma patients (age < 18 years) identified through the trauma registry of MCH. Pediatric trauma patients admitted from January 2010 to March 2014 with an Injury Severity Score (ISS) = 12 and a hospitalization of = 24 hours were included. Findings In total, 130 patients were included in this study, 61.1 percent male, median age ten years (range: 0-17 years) and median ISS of 17 (range: 12-



50). Blunt trauma accounted for 97.7 percent of patients admitted and 73.3 percent had trauma team activation. In total, 93 patients (71.5 percent) had ICU stays. The median time to feed was 29 hours (interquartile range: 12.5-43 hours) from the time of admission. An increased hospital length of stay was associated with longer time to initiation of nutrition support, a higher ISS and greater number of surgeries (  $p < 0.05$ ). Originality/value Local nutritional support practices for pediatric trauma patients correspond with recommended principles of early feeding and preferential enteral nutrition. Harmonization of paper-based and electronic data collection is recommended to ensure that prescribed nutritional support is being delivered and nutritional needs of pediatric trauma patients are being met.

### **7. Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Pediatric Critically Ill Patient: Society of Critical Care Medicine and American Society for Parenteral and Enteral Nutrition.**

**Author(s):** Mehta, Nilesh M; Skillman, Heather E; Irving, Sharon Y; Coss-Bu, Jorge A; Vermilyea, Sarah; Farrington, Elizabeth Anne; McKeever, Liam; Hall, Amber M; Goday, Praveen S; Braunschweig, Carol

**Source:** Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies; Jul 2017; vol. 18 (no. 7); p. 675-715

**Abstract:** This document represents the first collaboration between two organizations, American Society of Parenteral and Enteral Nutrition and the Society of Critical Care Medicine, to describe best practices in nutrition therapy in critically ill children. The target of these guidelines is intended to be the pediatric (> 1 mo and < 18 yr) critically ill patient expected to require a length of stay greater than 2 or 3 days in a PICU admitting medical, surgical, and cardiac patients. In total, 2,032 citations were scanned for relevance. The PubMed/Medline search resulted in 960 citations for clinical trials and 925 citations for cohort studies. The EMBASE search for clinical trials culled 1,661 citations. In total, the search for clinical trials yielded 1,107 citations, whereas the cohort search yielded 925. After careful review, 16 randomized controlled trials and 37 cohort studies appeared to answer one of the eight preidentified question groups for this guideline. We used the Grading of Recommendations, Assessment, Development and Evaluation criteria to adjust the evidence grade based on assessment of the quality of study design and execution. These guidelines are not intended for neonates or adult patients. The guidelines reiterate the importance of nutritional assessment, particularly the detection of malnourished patients who are most vulnerable and therefore potentially may benefit from timely intervention. There is a need for renewed focus on accurate estimation of energy needs and attention to optimizing protein intake. Indirect calorimetry, where feasible, and cautious use of estimating equations and increased surveillance for unintended caloric underfeeding and overfeeding are recommended. Optimal protein intake and its correlation with clinical outcomes are areas of great interest. The optimal route and timing of nutrient delivery is an area of intense debate and investigations. Enteral nutrition remains the preferred route for nutrient delivery. Several strategies to optimize enteral nutrition during critical illness have emerged. The role of supplemental parenteral nutrition has been highlighted, and a delayed approach appears to be beneficial. Immunonutrition cannot be currently recommended. Overall, the pediatric critical care population is heterogeneous, and a nuanced approach to individualizing nutrition support with the aim of improving clinical outcomes is necessary.

### 8. High flow nasal cannula versus NCPAP, duration to full oral feeds in preterm infants: a randomised controlled trial.

**Author(s):** Glackin, Sinead J; O'Sullivan, Anne; George, Sherly; Semberova, Jana; Miletin, Jan

**Source:** Archives of disease in childhood. Fetal and neonatal edition; Jul 2017; vol. 102 (no. 4); p. F329

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

**Abstract:**OBJECTIVE To compare the time taken by preterm infants with evolving chronic lung disease to achieve full oral feeding when supported with humidified high flow nasal cannula (HFNC) or nasal continuous positive airway pressure (NCPAP).DESIGN Single centre randomised controlled trial.SETTING Level III neonatal intensive care unit at the Coombe Women and Infants University Hospital, Dublin, Ireland.PATIENTS Very low birthweight (birth weight <1500 g) infants born before 30 weeks' gestation who were NCPAP-dependent at 32 weeks corrected gestational age were eligible to participate.INTERVENTION Enrolled infants were randomised in a 1:1 ratio to receive HFNC or NCPAP. Participants were monitored daily until full oral feeding was established and the baby was off respiratory support.MAIN OUTCOME MEASURE Our primary outcome was the number of days taken to establish full oral feeds (defined as oral intake  $\geq 120$  mL/kg/day) from the time of randomisation. We estimated that enrolling 44 subjects (22 in each group) would allow us demonstrate a 7-day difference in our primary outcome with 80% power and  $\alpha$  of 5%.RESULTS Forty-four infants were randomised (22 to HFNC vs 22 to NCPAP). The mean time to achieve full oral feeding was not different between the groups (HFNC 36.5 ( $\pm 18.2$ ) days vs NCPAP 34.1 ( $\pm 11.2$ ) days,  $p=0.61$ ).CONCLUSION Preterm infants treated with HFNC did not achieve full oral feeding more quickly than infants treated with NCPAP.TRIAL REGISTRATION NUMBER ISRCTN66716753.

### 9. Effect of early supplemental parenteral nutrition in the paediatric ICU: a preplanned observational study of post-randomisation treatments in the PEPaNIC trial.

**Author(s):** Vanhorebeek, Ilse; Verbruggen, Sascha; Casaer, Michaël P; Gunst, Jan; Wouters, Pieter J; Hanot, Jan; Guerra, Gonzalo Garcia; Vlasselaers, Dirk; Joosten, Koen; Van den Berghe, Greet

**Source:** The Lancet. Respiratory medicine; Jun 2017; vol. 5 (no. 6); p. 475-483

**Abstract:**BACKGROUND Large randomised controlled trials have shown that early supplemental parenteral nutrition in patients admitted to adult and paediatric intensive care units (PICUs) is harmful. Overdosing of energy with too little protein was suggested as a potential reason for this. This study analysed which macronutrient was associated with harm caused by early supplemental parenteral nutrition in the Paediatric Early versus Late Parenteral Nutrition In Critical Illness (PEPaNIC) randomised trial.METHODS Patients in the initial randomised controlled trial were randomly assigned to receive supplemental parenteral nutrition (PN) within 24 h of PICU admission (early PN) or to receive such PN after 1 week (late PN) when enteral nutrition was insufficient. In this post-randomisation, observational study, doses of glucose, lipids, and aminoacids administered during the first 7 days of PICU stay were expressed as % of reference doses from published clinical guidelines for age and weight. Independent associations between average macronutrient doses up to each of the first 7 days and likelihood of acquiring an infection in the PICU, of earlier live weaning from mechanical ventilation, and of earlier live PICU discharge were investigated using multivariable Cox proportional hazard analyses. The three macronutrients were included in the analysis simultaneously and baseline risk factors were adjusted for.FINDINGS From June 18, 2012, to July 27, 2015, 7519 children aged between newborn and 17 years were assessed for eligibility. 6079 patients were excluded, and 1440 children were randomly assigned to receive either early PN (n=723) or late PN (n=717). With increasing doses of aminoacids, the likelihood of acquiring a new infection was higher (adjusted hazard ratios [HRs] per 10% increase between 1.043-1.134 for days 1-5,  $p \leq 0.029$ ),

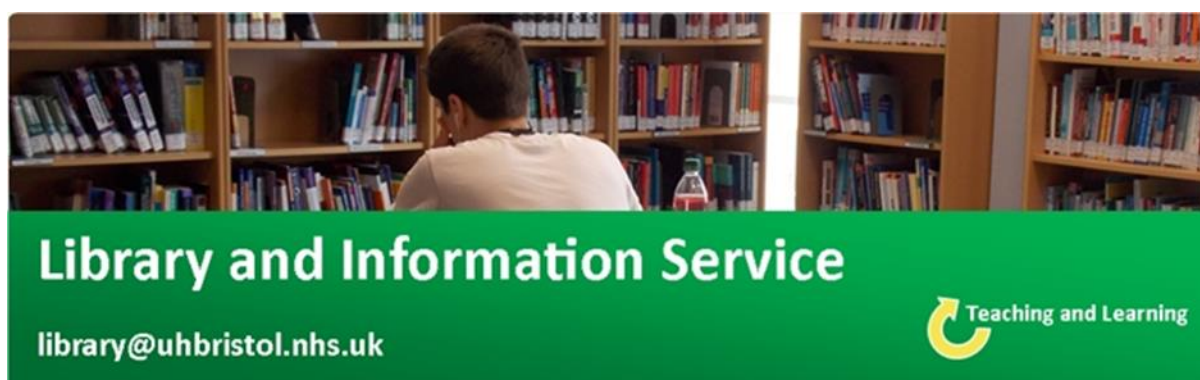
while the likelihood of earlier live weaning from mechanical ventilation was lower (HRs 0.950-0.975 days 3-7,  $p \leq 0.045$ ), and the likelihood of earlier live PICU discharge was lower (HRs 0.943-0.972 days 1-7,  $p \leq 0.030$ ). By contrast, more glucose during the first 3 days of PICU stay was independently associated with fewer infections (HRs 0.870-0.913,  $p \leq 0.036$ ), whereas more lipids was independently associated with earlier PICU discharge (HRs 1.027-1.050,  $p \leq 0.043$  days 4-7). Risk of harm with aminoacids was also shown for low doses. **INTERPRETATION** These associations suggest that early administration of aminoacids, but not glucose or lipids, could explain harm caused by early supplemental parenteral nutrition in critically ill children. **FUNDING** Flemish Agency for Innovation through Science and Technology; UZLeuven Clinical Research Fund; Research Foundation Flanders; Methusalem Programme Flemish Government; European Research Council; Fonds-NutsOhra; Erasmus-MC Research Grant; Erasmus Trustfonds.

## 10. Development, prevention, and treatment of feeding tube dependency.

**Author(s):** Krom, Hilde; de Winter, J Peter; Kindermann, Angelika

**Source:** European journal of pediatrics; Jun 2017; vol. 176 (no. 6); p. 683-688

**Abstract:** Enteral nutrition is effective in ensuring nutritional requirements and growth. However, when tube feeding lasts for a longer period, it can lead to tube dependency in the absence of medical reasons for continuation of tube feeding. Tube-dependent children are unable or refuse to start oral activities and they lack oral skills. Tube dependency has health-, psychosocial-, and economy-related consequences. Therefore, the transition to oral feeding is of great importance. However, this transition can be very difficult and needs a multidisciplinary approach. Most studies for treatment of tube dependency are based on behavioral interventions, such as family therapy, individual behavior therapy, neuro-linguistic programming, and parental anxiety reduction. Furthermore, oral motor therapy and nutritional adjustments can be helpful in tube weaning. The use of medication has been described in the literature. Although mostly chosen as the last resort, hunger-inducing methods, such as the Graz-model and the Dutch clinical hunger provocation program, are also successful in weaning children off tube feeding. **CONCLUSION** The transition from tube to oral feeding is important in tube-dependent children but can be difficult. We present an overview for the prevention and treatment of tube dependency. What is known: • Longer periods of tube feeding can lead to tube dependency. • Tube weaning can be very difficult. What is new: • Weaning as soon as possible and therefore referral to a multidisciplinary team are recommended. • An overview of treatment options for tube dependency is presented in this article.



## Library Opening Times

**Staffed hours: 8am-5pm, Monday to Friday**

**Swipe-card access: 7am-11pm, seven days a week**

**Level 5, Education and Research Centre**

**University Hospitals Bristol**

**Contact your Outreach Librarian:**

**Helen Pullen**

**[library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)**