Complete Summary

GUIDELINE TITLE

Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition.

BIBLIOGRAPHIC SOURCE(S)

National Collaborating Centre for Acute Care. Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. London (UK): National Institute for Health and Clinical Excellence; 2005 Nov. 451 p. [384 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Malnutrition

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Screening
Treatment

CLINICAL SPECIALTY

Family Practice
Gastroenterology
Geriatrics
Internal Medicine
Nutrition

INTENDED USERS

Advanced Practice Nurses
Dietitians
Nurses
Occupational Therapists
Patients
Pharmacists
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians

GUIDELINE OBJECTIVE(S)

To improve the practice of nutrition support by providing guidance to assist all healthcare professionals to correctly identify patients in hospital or the community who require nutritional intervention, and to help them choose and deliver the most appropriate form of nutrition support at the appropriate time

TARGET POPULATION

Adults (aged 18 years or older) who are either malnourished or are at risk of malnutrition

Excluded patient groups include the following:

- Patients requiring specific therapeutic or maintenance nutrition regimens in the context of diseases such as inborn errors of metabolism, diabetes and chronic renal or liver failure
- Pregnant women, since the nutritional demands on the mother and baby need specialist considerations
- Patients with eating disorders
- People who are obese
- Healthy individuals in the general population (i.e., for primary prevention of malnutrition)
- Children and adolescents under 18 years of age

INTERVENTIONS AND PRACTICES CONSIDERED

1. Screening for malnutrition and risk of malnutrition in hospital and the community
2. Consideration of nutritional support based on evaluation of body mass index, unintended weight loss, lack of nutritional intake, poor absorptive capacity and/or nutrient loss
3. Determination of route of delivery of nutritional support and mode of access

4. Oral nutrition support
5. Enteral nutrition support (via tube through stomach, duodenum or jejunum)
6. Parenteral nutrition support
7. Monitoring of nutritional support
8. Use of motility agents
9. Consideration of ethical and legal issues

MAJOR OUTCOMES CONSIDERED

- Effectiveness of nutritional support
- Cost effectiveness of nutritional support
- Adverse effects associated with nutritional support

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A literature review was conducted to identify and synthesise relevant evidence from the published literature. Three main search strategies were developed for oral, enteral and parenteral nutrition interventions. Four other search strategies were developed for nutritional screening, monitoring, dysphagia and patient issues.

Search filters to identify systematic reviews (SRs) and randomised controlled trials (RCTs) were applied to the search strategies. No language restrictions were applied to the search; however, foreign language papers were not requested or reviewed.

The following databases were included in the literature search:

- The Cochrane Library up to 2005 (Issue 1)
- Medline (Dialog Datastar) 1966-2005 (week)
- Embase (Dialog Datastar) 1980-2005 (week)
- Cinahl (Dialog Datastar) 1982-2005
- Allied & Complementary Medicine (Dialog Datastar) 1985-2005
- British Nursing Index (Dialog Datastar) 1994-2005

Although literature searching was started in 2003 update searches were run for each search to ensure all reviews included literature up to the same cut-off date. Therefore, each database was searched from its start date up to 3rd March 2005. Papers identified after this date were not considered, with the exception of the draft British Association of Parenteral and Enteral Nutrition (BAPEN) report on 'The cost of malnutrition in the UK and the economic case for the use of oral supplements (ONS) in adults', which the Guideline Development Group (GDG) had been anticipating but which was received shortly after the cut-off date. Search strategies can be found in Appendix Three of the original guideline document.

There was no systematic attempt to search for all the 'grey literature' (conferences, abstracts, theses and unpublished literature). The GDG searched for guidelines and reports from relevant websites, including the following listed below. Bibliographies of identified reports and guidelines were also checked to identify relevant literature.

- National Institute for Health and Clinical Excellence (NICE) (www.nice.org.uk)
- National electronic Library for Health (NeLH) (http://www.nelh.nhs.uk/)
- National Institutes of Health Consensus Development Program (http://www.consensus.nih.gov/)
- New Zealand Guidelines Development Group (NZGG) (http://www.nzgg.org.nz/)
- Scottish Intercollegiate Guideline Network (SIGN) (www.sign.ac.uk)
- US National Guideline Clearinghouse (www.guideline.gov)
- Web sites of relevant members of the Guidelines International Network (www.g-i-n.net/)
- Google (www.google.com)

Study Selection

One reviewer independently scanned the titles and abstracts of the literature searches. Full publications were obtained for any studies considered relevant or where there was insufficient information from the title and abstract to make a decision.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

1++ High-quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

1+ Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias

1- Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias

2++ High-quality systematic reviews of case-control or cohort studies

High-quality case-control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal

2+ Well-conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal

2- Case-control or cohort studies with a high risk of confounding, bias, or chance and a significant risk that the relationship is not causal

3 Non-analytical studies (for example, case reports, case series)

4 Expert opinion, formal consensus

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis
Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Data Extraction and Quality Assessment

A team of reviewers individually applied the inclusion/exclusion criteria to determine all potentially relevant studies. The reviewers also assessed the quality of eligible studies by referring to the Scottish Intercollegiate Guidelines Network (SIGN) quality checklists for systematic reviews/meta-analyses and randomised control trials. Of all the relevant studies data on the type of population, intervention, comparator and outcomes was summarised onto evidence tables (see Appendix Four of the original guideline document). In the instances where there was missing data the Guideline Development Group (GDG) did not attempt to contact the authors because of limited resources.

Meta-analysis

For some of their results the GDG were able to produce a meta-analysis using Review Manager version 4.2, the software used by the Cochrane Collaboration. For some studies the GDG approximated the mean length of stay using the median and estimated the standard deviation as a weighted mean of the standard deviations of the other studies.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus
Expert Consensus (Delphi)
Expert Consensus (Nominal Group Technique)
Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The Guideline Development Group (GDG) was presented with summaries (text and evidence tables) of the best available research evidence to answer the clinical questions. Recommendations were based on and explicitly linked to the evidence

that supported them. With the exception of the nutrition screening recommendations the Group worked on an informal consensus basis to formulate and grade recommendations according to the level of evidence upon which they were based. In the final stages of the guideline development process, the recommendations were further revised at a number of meetings where the GDG members agreed by informal the consensus the final wording and meaning of the recommendations as a round table discussion.

Recommendations in the Absence of Literature

The recommendations in this guideline have been systematically developed with as much scientific rigour as possible. However for a number of the clinical questions there was an absence of randomised controlled trial (RCT) evidence either because the clinical questions did not lend themselves to controlled trials and systematic reviewing, or for which there were too few trials identified to make substantive recommendations. Invariably, the GDG needed to use additional approaches such as surveys or informal/formal consensus development to assist with some areas of the guidance. Below is a description of the areas of the guideline that required additional approaches in addition to systematic searching and reviewing of RCTs.

Nutritional screening: Because of weaknesses in the methodologies and designs of the studies identified, no firm conclusions could be made. A modified Delphi approach for consensus development was used, consisting of two rounds of Delphi questionnaire surveys and then a nominal group technique meeting. See Screening Chapter 4.7 Consensus development methods in the original guidelines document.

Indications for oral, enteral and parenteral interventions: The guidance could not be derived from controlled trials thus the recommendations were drafted by the technical team at the National Collaborating Centre for Acute Care (NCC-AC) and modified and agreed by informal consensus with the GDG.

Ethical and Legal issues: The brief important comments on the ethical and legal issues of nutrition support contained within these Guidelines were derived from GDG expertise and previous expert treatises on these topics.

Dysphagia: No RCT's were found to provide guidance on options of nutrition support for patients with dysphagia. A specialist subgroup of speech and language therapists with a special interest in dysphagia was convened to develop and propose suitable recommendations. These were agreed by informal consensus with the GDG.

Prescription of nutrients: Recommendations were proposed by GDG members with relevant expertise and agreed by informal consensus among all GDG members.

Refeeding syndrome: Recommendations were formulated by members of the group based on previous published reviews and their own expertise, and agreed by informal consensus among all GDG members.

Monitoring: The GDG were sent questionnaires electronically asking them to determine how often certain nutritional and biochemical parameters are and should be measured. Two GDG members with expertise in this area considered the outcomes of the survey and proposed the guidance/recommendations which the GDG agreed by informal consensus.

Nutritional assessment: Two GDG members with expertise in this area proposed the guidance/recommendations to the whole GDG who agreed on these by informal consensus.

Nutrition support teams: Both randomised and non-randomised trials were considered for this section as some observational study designs were also appropriate for this question.

Patients' and carers' views: The GDG sent letters requesting evidence on patients' and carers' views of nutrition support to twenty stakeholders. A literature search was conducted to identify relevant evidence for any study design. Three sub-group meetings with patient representatives on the GDG were held. Patient representatives were involved in the sifting of the abstracts retrieved from the literature search. A systematic reviewer summarised the evidence from the studies. The text was included in discussion with patient representatives at sub-group meetings and in consultation with GDG members at GDG meetings.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

A - At least one meta-analysis, systematic review, or randomised controlled trial (RCT) rated as 1++, and is directly applicable to the target population, *or*

A systematic review of RCTs or a body of evidence that consists principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

Evidence drawn from a NICE technology appraisal

B - A body of evidence that includes studies rated as 2++, is directly applicable to the target population and demonstrates overall consistency of results, *or*

Extrapolated evidence from studies rated as 1++ or 1+

C - A body of evidence that includes studies rated as 2+, is directly applicable to the target population and demonstrates overall consistency of results, *or*

Extrapolated evidence from studies rated as 2++

D - Evidence level 3 or 4, *or*

Extrapolated evidence from studies rated as 2+, *or*

Formal consensus

D (GPP) - A good practice point (GPP) is a recommendation for best practice based on the experience of the Guideline Development Group

COST ANALYSIS

Health Economics Methods

To assess the cost-effectiveness of each recommendation, a comprehensive systematic review of the economic literature was conducted. In addition an original cost-effectiveness analysis was performed for malnutrition screening.

The primary criteria applied for an intervention to be considered cost-effective were either:

a. The intervention dominated other relevant strategies (that is, it is both less costly in terms of resource use and more clinically effective compared with the other relevant alternative strategies); or
b. The intervention cost less than 20,000 pounds sterling per quality-adjusted life-year (QALY) gained compared with the next best strategy (and compared with best supportive care). Between 20,000 and 30,000 pounds sterling per QALY, judgments about the acceptability of the intervention as an effective use of National Health Service (NHS) resources have to make more explicit reference to such factors as the degree of uncertainty surrounding the calculation of cost-effectiveness, the innovative nature of the intervention and the particular features of the condition and the population receiving it.

Cost-effectiveness Modelling

Screening was selected for original economic analysis because it was likely that the recommendations under consideration would substantially change clinical practice in the NHS and have important consequences for resource use. The details of the model are reported in chapter 4 and Appendix Five: Cost-Effectiveness Analysis of Malnutrition Screening of the original guideline document.

See the "Availability of Companion Documents" field for additional costing information, including a "Costing Template" and a "Costing Report" for nutrition support in adults.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline was validated through two consultations.

1. The first draft of the guideline (The full guideline, National Institute for Health and Clinical Excellence (NICE) guideline and Quick Reference Guide) were consulted with Stakeholders and comments were considered by the Guideline Development Group (GDG)
2. The final consultation draft of the Full guideline, the NICE guideline and the Information for the Public were submitted to stakeholders for final comments.

3. The final draft was submitted to the Guideline Review Panel for review prior to publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Levels of evidence **(1-4)** and grading of recommendations **(A- D [GPP])** are defined at the end of the "Major Recommendations" field.

Organisation of Nutrition Support in Hospital and the Community

D (GPP) - All healthcare professionals who are directly involved in patient care should receive education and training, relevant to their post, on the importance of providing adequate nutrition.

D (GPP) - Education and training should cover:

- nutritional needs and indications for nutrition support
- options for nutrition support (oral, enteral and parenteral)
- ethical and legal concepts
- potential risks and benefits
- when and where to seek expert advice

D (GPP) - Healthcare professionals should ensure that care provides:

- food and fluid of adequate quantity and quality in an environment conducive to eating
- appropriate support, for example, modified eating aids, for people who can potentially chew and swallow but are unable to feed themselves

D (GPP) - Healthcare professionals should ensure that all people who need nutrition support receive coordinated care from a multidisciplinary team (the composition of this team may differ according to setting and local arrangements).

D (GPP) - All acute hospital trusts should have a multidisciplinary nutrition support team which may include: doctors (for example gastroenterologists, gastrointestinal surgeons, intensivists or others with a specific interest in nutrition support), dietitians, a specialist nutrition nurse, other nurses, pharmacists, biochemistry and microbiology laboratory support staff, and other allied healthcare professionals (for example, speech and language therapists).

D (GPP) - All hospital trusts should have a nutrition steering committee working within the clinical governance framework.

D (GPP) - Members of the nutrition steering committee should be drawn from trust management, and include senior representation from medical staff, catering, nursing, dietetics, pharmacy and other healthcare professionals as appropriate, for example, speech and language therapists.

D (GPP) - All acute hospital trusts should employ at least one specialist nutrition support nurse.

D (GPP) - The specialist nutrition support nurse should work alongside nursing staff, as well as dietitians and other experts in nutrition support, to:

- minimise complications related to enteral tube feeding and parenteral nutrition
- ensure optimal ward-based training of nurses
- ensure adherence to nutrition support protocols
- support coordination of care between the hospital and the community

Screening for Malnutrition and the Risk of Malnutrition in Hospital and the Community

D (GPP) - Screening for malnutrition and the risk of malnutrition should be carried out by healthcare professionals with appropriate skills and training.

D (GPP) - All hospital inpatients on admission and all outpatients at their first clinic appointment should be screened. Screening should be repeated weekly for inpatients and when there is clinical concern for outpatients.

D (GPP) - Hospital departments who identify groups of patients with low risk of malnutrition may opt out of screening these groups. Opt-out decisions should follow an explicit process via the local clinical governance structure involving experts in nutrition support.

D (GPP) - People in care homes should be screened on admission and when there is clinical concern.

D (GPP) - Screening should take place on initial registration at general practice surgeries and when there is clinical concern, (Clinical concern includes, for example, unintentional weight loss, fragile skin, poor wound healing, apathy, wasted muscles, poor appetite, altered taste sensation, impaired swallowing, altered bowel habit, loose fitting clothes or prolonged intercurrent illness.) Screening should also be considered at other opportunities (for example, health checks, flu injections).

D (GPP) - Screening should assess body mass index (BMI) [BMI is weight (kg)/height(m^2) (weight in kilograms divided by height in metres squared)] and percentage unintentional weight loss and should also consider the time over which nutrient intake has been unintentionally reduced and/or the likelihood of future impaired nutrient intake. The Malnutrition Universal Screening Tool (MUST), for example, may be used to do this.

Indications for Nutrition Support in Hospital and the Community

D (GPP) - Nutrition support should be considered in people who are malnourished, as defined by any of the following:

- a BMI of less than 18.5 kg/m^2

- unintentional weight loss greater than 10% within the last 3 to 6 months
- a BMI of less than 20 kg/m^2 and unintentional weight loss greater than 5% within the last 3 to 6 months

D (GPP) - Nutrition support should be considered in people at risk of malnutrition who, as defined by any of the following:

- have eaten little or nothing for more than 5 days and/or are likely to eat little or nothing for the next 5 days or longer
- have a poor absorptive capacity, and/or have high nutrient losses and/or have increased nutritional needs from causes such as catabolism

D (GPP) - Healthcare professionals should consider using oral, enteral or parenteral nutrition support, alone or in combination, for people who are either malnourished or at risk of malnutrition. Potential swallowing problems should be taken into account.

Healthcare professionals involved in starting or stopping nutrition support should:

- obtain consent from the patient if he or she is competent
- act in the patient's best interest if he or she is not competent to give consent
- be aware that the provision of nutrition support is not always appropriate. Decisions on withholding or withdrawing of nutrition support require a consideration of both ethical and legal principles (both at common law and statute including the Human Rights Act 1998)

D (GPP) - When such decisions are being made guidance issued by the General Medical Council ("Withholding and withdrawing life prolonging treatments: good practice in decision making," 2005) and the Department of Health (Good Practice in Consent Advisory Group, 2001) should be followed.

D (GPP) - Healthcare professionals should ensure that people having nutrition support, and their carers, are kept fully informed about their treatment. They should also have access to appropriate information and be given the opportunity to discuss diagnosis and treatment options.

What to Give in Hospital and the Community

D (GPP) - Healthcare professionals who are skilled and trained in nutritional requirements and methods of nutrition support should ensure that the total nutrient intake (total intake includes intake from any food, oral fluid, oral nutritional supplements, enteral and/or parenteral nutrition support and intravenous fluid) of people prescribed nutrition support accounts for:

- energy, protein, fluid, electrolyte, mineral, micronutrients (the term micronutrient is used throughout to include all essential vitamins and trace elements) and fibre needs
- activity levels and the underlying clinical condition – for example, catabolism, pyrexia
- gastrointestinal tolerance, potential metabolic instability and risk of refeeding problems

- the likely duration of nutrition support

D (GPP) - For people who are not severely ill or injured, nor at risk of refeeding syndrome, the suggested nutritional prescription for total intake should provide all of the following:

- 25 to 35 kcal/kg/day total energy (including that derived from protein [This level may need to be lower in people who are overweight, BMI>25. When using parenteral nutrition it is often necessary to adjust total energy values listed on the manufacturer's information which may not include protein energy values.])
- 0.8 to 1.5 g protein (0.13 to 0.24 g nitrogen)/kg/day
- 30 to 35 ml fluid/kg (with allowance for extra losses from drains and fistulae, for example, and extra input from other sources – for example, intravenous drugs)
- adequate electrolytes, minerals, micronutrients (allowing for any pre-existing deficits, excessive losses or increased demands) and fibre if appropriate

D (GPP) - The prescription should be reviewed according to the person's progress, and care should be taken when:

- using food fortification which tends to supplement energy and/or protein without adequate micronutrients and minerals
- using feeds and supplements that meet full energy and nitrogen needs, as they may not provide adequate micronutrients and minerals when only used in a supplementary role
- using pre-mixed parenteral nutrition bags that have not had tailored additions from pharmacy

D (GPP) - Nutrition support should be cautiously introduced in seriously ill or injured people requiring enteral tube feeding or parenteral nutrition. It should be started at no more than 50% of the estimated target energy and protein needs. It should be built up to meet full needs over the first 24 to 48 hours according to metabolic and gastrointestinal tolerance. Full requirements of fluid, electrolytes, vitamins and minerals should be provided from the outset of feeding.

D (GPP) - People who have eaten little or nothing for more than 5 days should have nutrition support introduced at no more than 50% of requirements for the first 2 days, before increasing feed rates to meet full needs if clinical and biochemical monitoring reveals no refeeding problems.

D (GPP) - People who meet the criteria in the table below entitled "Criteria for determining people at high risk of developing refeeding problems" should be considered to be at high risk of developing refeeding problems.

Criteria for Determining People at High Risk of Developing Refeeding Problems

Patient has one or more of the following:
• BMI less than 16 kg/m^2

- unintentional weight loss greater than 15% within the last 3 to 6 months
- little or no nutritional intake for more than 10 days
- low levels of potassium, phosphate or magnesium prior to feeding

Or patient has two or more of the following:

- BMI less than 18.5 kg/m^2
- unintentional weight loss greater than 10% within the last 3 to 6 months
- little or no nutritional intake for more than 5 days
- a history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

D (GPP) - People at high risk of developing refeeding problems (see table above) should be cared for by healthcare professionals who are appropriately skilled and trained and have expert knowledge of nutritional requirements and nutrition support.

D (GPP) - The prescription for people at high risk of developing refeeding problems should consider:

- starting nutrition support at a maximum of 10 kcal/kg/day, increasing levels slowly to meet or exceed full needs by 4 to 7 days
- using only 5 kcal/kg/day in extreme cases (for example, BMI less than 14 kg/m^2 or negligible intake for more than 15 days) and monitoring cardiac rhythm continually in these people and any others who already have or develop any cardiac arrhythmias
- restoring circulatory volume and monitoring fluid balance and overall clinical status closely
- providing immediately before and during the first 10 days of feeding: oral thiamin 200 to 300 mg daily, vitamin B compound (co) strong 1 or 2 tablets, three times a day (or full dose daily intravenous vitamin B preparation, if necessary) and a balanced multivitamin/trace element supplement once daily.
- providing oral, enteral or intravenous supplements of potassium (likely requirement 2 to 4 mmol/kg/day), phosphate (likely requirement 0.3 to 0.6 mmol/kg/day) and magnesium (likely requirement 0.2 mmol/kg/day intravenous, 0.4 mmol/kg/day oral) unless pre-feeding plasma levels are high. Pre-feeding correction of low plasma levels is unnecessary

Monitoring of Nutrition Support in Hospital and the Community

D (GPP) - Healthcare professionals should review the indications, route, risks, benefits and goals of nutrition support at regular intervals. The time between reviews depends on the patient, care setting and duration of nutrition support. Intervals may increase as the patient is stabilised on nutrition support.

D (GPP) - People having nutrition support in hospital should be monitored by healthcare professionals with the relevant skills and training in nutritional monitoring.

D (GPP) - Healthcare professionals should refer to the protocols for nutritional, anthropometric and clinical monitoring, shown in Table 3 of the original guideline document, when monitoring people having nutrition support in hospital.

D (GPP) - Healthcare professionals should refer to the protocols for laboratory monitoring, shown in Table 4 of the original guideline document, when monitoring people having nutrition support in hospital. Table 4 of the original guideline document is particularly relevant to parenteral nutrition. It could also be selectively applied when enteral or oral nutrition support is used, particularly for people who are metabolically unstable or at risk of refeeding syndrome. The frequency and extent of the observations given may need to be adapted in acutely ill or metabolically unstable people.

D (GPP) - People having parenteral nutrition in the community need regular assessment and monitoring. This should be carried out by home care specialists and by experienced hospital teams (initially at least weekly), using observations marked * in Table 3 of the original guideline document. In addition, they should be reviewed at a specialist hospital clinic every 3 to 6 months. Monitoring should be more frequent during the early months of home parenteral nutrition, or if there is a change in clinical condition, when the full range of tests in Tables 3 and 4 of the original guideline document should be performed. Some of the clinical observations may be checked by patients or carers.

D (GPP) - People having oral nutrition support and/or enteral tube feeding in the community should be monitored by healthcare professionals with the relevant skills and training in nutritional monitoring. This group of people should be monitored every 3 to 6 months or more frequently if there is any change in their clinical condition. A limited number of observations and tests from Table 3 of the original guideline document should be performed. Some of the clinical observations may be checked by patients or carers. If clinical progress is satisfactory, laboratory tests are rarely needed.

D (GPP) - If long-term nutrition support is needed patients and carers should be trained to recognise and respond to adverse changes in both their well-being and in the management of their nutritional delivery system.

Oral Nutrition Support in Hospital and the Community

People with Dysphagia

D (GPP) - People who present with any obvious or less obvious indicators of dysphagia listed in the table below, titled " Indicators of dysphagia" should be referred to healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders.

Indicators of Dysphagia

Obvious Indicators of Dysphagia	Less Obvious Indicators of Dysphagia
Difficult, painful chewing or swallowing	Change in respiration pattern
Regurgitation of undigested food	Unexplained temperature spikes
Difficulty controlling food or liquid in	Wet voice quality

Obvious Indicators of Dysphagia	Less Obvious Indicators of Dysphagia
the mouth	
Drooling	Tongue fasciculation (may be indicative of motor neurone disease)
Hoarse voice	Xerostomia
Coughing or choking before, during or after swallowing	Heartburn
Globus sensation	Change in eating habits – for example, eating slowly or avoiding social occasions
Nasal regurgitation	Frequent throat clearing
Feeling of obstruction	Recurrent chest infections
Unintentional weight loss – for example, in people with dementia	Atypical chest pain

D (GPP) - Healthcare professionals should recognise that people with acute and chronic neurological conditions and those who have undergone surgery or radiotherapy to the upper aero-digestive tract are at high risk of developing dysphagia.

D (GPP) - When managing people with dysphagia, healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders should consider:

- the risks and benefits of modified oral nutrition support and/or enteral tube feeding
- the factors listed in the table below, titled "Factors to be considered before modification of nutrition support and hydration in people with dysphagia"

Factors to Be Considered Before Modification of Nutrition Support and Hydration in People with Dysphagia

Recurrent chest infections
Mobility
Dependency on others for assistance to eat
Perceived palatability and appearance of food or drink
Level of alertness
Compromised physiology
Poor oral hygiene
Compromised medical status
Metabolic and nutritional requirements
Vulnerability (for example, immunocompromised)

Comorbidities

D (GPP) - People with dysphagia should have a drug review to ascertain if the current drug formulation, route and timing of administration remains appropriate and is without contraindications for the feeding regimen or swallowing process.

D (GPP) - Healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders should regularly monitor and reassess people with dysphagia who are having modified food and liquid until they are stable.

Indications for Oral Nutrition Support

A - Healthcare professionals should consider oral nutrition support (oral nutrition support includes any of the following methods to improve nutritional intake: fortified food with protein, carbohydrate and/or fat, plus minerals and vitamins; snacks; oral nutritional supplements; altered meal patterns; the provision of dietary advice) to improve nutritional intake for people who can swallow safely and are malnourished (see definition above in "Indications for Nutrition Support in Hospital and the Community") or at risk of malnutrition (see definition above in "Indications for Nutrition Support in Hospital and the Community").

D (GPP) - Healthcare professionals should ensure that the overall nutrient intake of oral nutrition support offered contains a balanced mixture of protein, energy, fibre, electrolytes, vitamins and minerals.

D (GPP) - If there is concern about the adequacy of micronutrient intake, a complete oral multivitamin and mineral supplement providing the reference nutrient intake for all vitamins and trace elements should be considered by healthcare professionals with the relevant skills and training in nutrition support who are able to determine the nutritional adequacy of a patient's dietary intake.

D (GPP) - Oral nutrition support should be stopped when the patient is established on adequate oral intake from normal food.

Oral Nutrition Support for Surgical Patients

B - Peri-operative oral nutrition support should be considered for surgical patients who can swallow safely and are malnourished.

A - Healthcare professionals should consider giving post-caesarean or gynaecological surgical patients who can swallow safely, some oral intake within 24 hours of surgery.

A - Healthcare professionals should consider giving post-abdominal surgery patients who can swallow safely, and in whom there are no specific concerns about gut function or integrity, some oral intake within 24 hours of surgery. The patient should be monitored carefully for any signs of nausea or vomiting.

Enteral Tube Feeding in Hospital and the Community

In this guideline, enteral tube feeding refers to the delivery of a nutritionally complete feed (as specified in Chapter 9 of the original guideline document) via a tube into the stomach, duodenum or jejunum.

Indications for Enteral Tube Feeding

D (GPP) - Healthcare professionals should consider enteral tube feeding in people who are malnourished or at risk of malnutrition respectively, and have:

- inadequate or unsafe oral intake, and
- a functional, accessible gastrointestinal tract

A - Enteral tube feeding should not be given to people unless they are malnourished or at risk of malnutrition and have; inadequate or unsafe oral intake and a functional, accessible gastrointestinal tract, or they are taking part in a clinical trial.

D (GPP) - Enteral tube feeding should be stopped when the patient is established on adequate oral intake.

Enteral Tube Feeding for Surgical Patients

B - Surgical patients who are: malnourished and have; inadequate or unsafe oral intake and a functional, accessible gastrointestinal tract and are due to undergo major abdominal procedures, should be considered for pre-operative enteral tube feeding.

A - General surgical patients should not have enteral tube feeding within 48 hours post-surgery unless they are malnourished or at risk of malnutrition and have; inadequate or unsafe oral intake and a functional, accessible gastrointestinal tract.

Route of Access

A - People in general medical, surgical and intensive care wards who are malnourished or at risk of malnutrition and have; inadequate or unsafe oral intake and a functional, accessible gastrointestinal tract should be fed via a tube into the stomach unless there is upper gastrointestinal dysfunction.

D (GPP) - People who are malnourished or at risk of malnutrition and have inadequate or unsafe oral intake and a functional, accessible gastrointestinal tract, with upper gastrointestinal dysfunction (or an inaccessible upper gastrointestinal tract) should be considered for post-pyloric (duodenal or jejunal) feeding.

D (GPP) - Gastrostomy feeding should be considered in people likely to need long-term (4 weeks or more) enteral tube feeding.

A - Percutaneous endoscopic gastrostomy (PEG) tubes which have been placed without apparent complications can be used for enteral tube feeding 4 hours after insertion.

People with Dysphagia

A - In the acute setting, for example following stroke, people unable to swallow safely or take sufficient energy and nutrients orally should have an initial 2 to 4 week trial of nasogastric enteral tube feeding. Healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders should assess the prognosis and options for future nutrition support.

Mode of Delivery

B - For people being fed into the stomach, bolus or continuous methods should be considered, taking into account patient preference, convenience and drug administration.

D (GPP) - For people in intensive care, nasogastric tube feeding should usually be delivered continuously over 16 to 24 hours daily. If insulin administration is needed it is safe and more practical to administer feeding continuously over 24 hours.

Motility Agents

A - For people in intensive care with delayed gastric emptying who are not tolerating enteral tube feeding, a motility agent should be considered, unless there is a pharmacological cause that can be rectified or suspicion of gastrointestinal obstruction.

D (GPP) - People in other acute care settings who have delayed gastric emptying and are not tolerating enteral tube feeding should also be offered a motility agent unless there is a pharmacological cause that can be rectified or suspicion of gastrointestinal obstruction.

D (GPP) - If delayed gastric emptying is severely limiting feeding into the stomach, despite the use of motility agents, post-pyloric enteral tube feeding and/or parenteral nutrition should be considered.

Management of Tubes

D (GPP) - People requiring enteral tube feeding should have their tube inserted by healthcare professionals with the relevant skills and training.

D (GPP) - The position of all nasogastric tubes should be confirmed after placement and before each use by aspiration and pH graded paper (with X-ray if necessary) as per the advice from the National Patient Safety Agency (NPSA) 2005. Local protocols should address the clinical criteria that permit enteral tube feeding. These criteria include how to proceed when the ability to make repeat checks of the tube position is limited by the inability to aspirate the tube, or the checking of pH is invalid because of gastric acid suppression.

D (GPP) - The initial placement of post-pyloric tubes should be confirmed with an abdominal X-ray (unless placed radiologically). Agreed protocols setting out the necessary clinical checks need to be in place before this procedure is carried out.

Parenteral Nutrition in Hospital and the Community

Indications for Parenteral Nutrition

D (GPP) - Healthcare professionals should consider parenteral nutrition in people who are malnourished or at risk of malnutrition, respectively, and meet either of the following criteria:

- inadequate or unsafe oral and/or enteral nutritional intake
- a non-functional, inaccessible or perforated (leaking) gastrointestinal tract

Prescription

D (GPP) - Parenteral nutrition should be introduced progressively and closely monitored, usually starting at no more than 50% of estimated needs for the first 24 to 48 hours. Parenteral nutrition can be withdrawn once adequate oral or enteral nutrition is tolerated and nutritional status is stable. Withdrawal should be planned and stepwise with a daily review of the patient's progress.

D (GPP) - Patients who need parenteral nutrition should have their nutritional requirements determined by healthcare professionals with the relevant skills and training in the prescription of nutrition support. Before using most parenteral nutrition products, micronutrients and trace elements should be added and additional electrolytes and other nutrients may also be needed. Additions should be made under appropriate pharmaceutically controlled environmental conditions before administration.

D (GPP) - Parenteral nutrition should be stopped when the patient is established on adequate oral and/or enteral support. There is no minimum length of time for the duration of parenteral nutrition.

Parenteral Nutrition for Surgical Patients

B - Healthcare professionals should consider supplementary peri-operative parenteral nutrition in malnourished surgical patients who have an inadequate or unsafe oral and/or enteral nutritional intake or a non-functional, inaccessible or perforated (leaking) gastrointestinal tract

B - Peri-operative supplementary parenteral nutrition should not be given to surgical patients unless they are malnourished or at risk of malnutrition and have an inadequate or unsafe oral and/or enteral nutritional intake or a non-functional, inaccessible or perforated (leaking) gastrointestinal tract.

B - If intestinal tolerance persistently limits enteral tube feeding in surgical or critical care patients, parenteral nutrition should be used to supplement or replace enteral tube feeding.

Route of Access

B - In hospital, parenteral nutrition can be given via a dedicated peripherally inserted central catheter as an alternative to a dedicated centrally placed central

venous catheter. A free dedicated lumen in a multi-lumen centrally placed catheter may also be used.

B - Administration of parenteral nutrition via a peripheral venous catheter should be considered for patients who are likely to need short-term parenteral nutrition (less than 14 days) who have no need for central access for other reasons. Care should be taken in catheter choice and in attention to pH, tonicity and long-term compatibility of the parenteral nutrition formulations in order to avoid administration or stability problems.

D (GPP) - Tunnelling subclavian lines is recommended for long-term use (more than 30 days).

B - Catheters do not have to be tunnelled for short-term use (less than 30 days).

Mode of Delivery

B - Continuous administration of parenteral nutrition should be offered as the preferred method of infusion in severely ill people who require parenteral nutrition.

B - Cyclical delivery of parenteral nutrition should be considered when using peripheral venous cannulae with planned routine catheter change.

D (GPP) - A gradual change from continuous to cyclical delivery should be considered in patients requiring parenteral nutrition for more than 2 weeks.

Management of Catheters

D (GPP) - Only healthcare professionals competent in catheter placement should be responsible for the placement of catheters and they should be aware of the importance of monitoring and managing these safely (National Collaborating Centre for Nursing and Supportive Care, 2003).

Supporting Patients in the Community

D (GPP) - Healthcare professionals should ensure that patients having enteral or parenteral nutrition in the community and their carers:

- are kept fully informed and have access to appropriate sources of information in formats, languages and ways that are suited to an individual's requirements. Consideration should be given to cognition, gender, physical needs, culture and stage of life of the individual
- have the opportunity to discuss diagnosis, treatment options and relevant physical, psychological and social issues
- are given contact details for relevant support groups, charities and voluntary organisations

Enteral Tube Feeding

D (GPP) - All people in the community having enteral tube feeding should be supported by a coordinated multidisciplinary team, which includes dietitians, district, care home or homecare company nurses, General Practitioners (GPs), community pharmacists and other allied healthcare professionals (for example, speech and language therapists) as appropriate. Close liaison between the multidisciplinary team and patients and carers regarding diagnoses, prescription, arrangements and potential problems is essential.

D (GPP) - Patients in the community having enteral tube feeding and their carers should receive an individualised care plan which includes overall aims and a monitoring plan.

D (GPP) - Patients in the community having enteral tube feeding and their carers, should receive training and information from members of the multidisciplinary team on:

- the management of the tubes, delivery systems and the regimen, outlining all procedures related to setting up feeds, using feed pumps, the likely risks and methods for troubleshooting common problems and be provided with an instruction manual (and visual aids if appropriate)
- both routine and emergency telephone numbers to contact a healthcare professional who understands the needs and potential problems of people on home enteral tube feeding
- the delivery of equipment, ancillaries and feed with appropriate contact details for any homecare company involved

Parenteral Nutrition

D (GPP) - All people in the community having parenteral nutrition should be supported by a co-ordinated multidisciplinary team, which includes input from specialist nutrition nurses, dietitians, GPs, pharmacists and district and/or homecare company nurses. Close liaison between the multidisciplinary team and patients and carers regarding diagnoses, prescription, arrangements and potential problems is essential.

D (GPP) - People in the community having parenteral nutrition and their carers should receive an individualised care plan which includes overall aims and a monitoring plan.

D (GPP) - People in the community having parenteral nutrition and their carers should receive training and information from members of the multidisciplinary team on:

- the management of the delivery systems and the regimen, outlining all procedures related to setting up feeds, using feed pumps, the likely risks and methods for troubleshooting common problems and be provided with an instruction manual (and visual aids if appropriate)
- routine and emergency telephone numbers to contact a healthcare professional with the relevant competencies (specialist nutrition nurse, pharmacist)
- the arrangements for the delivery of equipment, ancillaries and feed with appropriate contact details for any homecare company involved

Definitions:

Evidence Categories

1++ High-quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

1+ Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias

1- Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias

2++ High-quality systematic reviews of case-control or cohort studies

High-quality case-control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal

2+ Well-conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal

2- Case-control or cohort studies with a high risk of confounding, bias, or chance and a significant risk that the relationship is not causal

3 Non-analytical studies (for example, case reports, case series)

4 Expert opinion, formal consensus

Recommendation Grades

A - At least one meta-analysis, systematic review, or randomised controlled trial (RCT) rated as 1++, and is directly applicable to the target population, *or*

A systematic review of RCTs or a body of evidence that consists principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

Evidence drawn from a NICE technology appraisal

B - A body of evidence that includes studies rated as 2++, is directly applicable to the target population and demonstrates overall consistency of results, *or*

Extrapolated evidence from studies rated as 1++ or 1+

C - A body of evidence that includes studies rated as 2+, is directly applicable to the target population and demonstrates overall consistency of results, *or*

Extrapolated evidence from studies rated as 2++

D - Evidence level 3 or 4, *or*

Extrapolated evidence from studies rated as 2+, *or*

Formal consensus

D (GPP) - A good practice point (GPP) is a recommendation for best practice based on the experience of the Guideline Development Group

CLINICAL ALGORITHM(S)

Algorithms are provided in the original guideline document for:

- Patient Pathway
- Oral Support
- Enteral and Parenteral Support

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is provided for each recommendation (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of nutritional support in patients who are malnourished to improve nutritional intake

POTENTIAL HARMS

- Potential risk of refeeding syndrome in patients receiving nutritional support
- Oral supplementation can cause pneumonia in dysphagic patients, while enteral tube feeding and parenteral nutrition can cause gastrointestinal problems, infections, metabolic upset and trauma.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Specific Problems with Evidence Relating to the Development of Nutrition Support Guidelines

Literature searching, appraising the evidence and developing recommendations for this guideline proved to be particularly challenging. In part, this was due to a shortage of randomised controlled trials relating to some of the clinical questions, but the Guideline Development Group (GDG) also observed problems with the types of patients entered into many of the selected controlled trials. Providing adequate nutrition is usually seen as a part of basic care, and this creates obstacles to good quality research in nutrition support. For example, although it is obvious that inadequate provision of nutrition for prolonged periods eventually leads to death, no randomised trials support this statement and any recommendation that patients should not be allowed to die of starvation is therefore grade D.

Other fundamental problems with available evidence include:

a. In trials of nutritional intervention it is often neither feasible nor ethical to have 'no nutrition' as the control.
b. Patients who are malnourished and therefore eligible to be recruited for trials of nutrition support have very variable diagnoses and come from a wide variety of settings. Trial populations are therefore very heterogeneous with wide potential variation in outcomes of interest. Large scale studies are therefore needed to demonstrate any potential benefits on outcome but most nutritional trials have been small.
c. When performing trials on invasive means of nutrition support such as enteral and parenteral nutrition, it is usually considered unethical to randomise patients who have an 'undoubted' need for such support. Trials therefore recruit patients who are at lower nutritional risk than those conventionally fed by these methods and so their results may be inapplicable to normal clinical practice.
d. Developments in the formulations and delivery of enteral and parenteral nutrition support and consequent reductions in risk have made many older studies less relevant. For instance, in recent years it has been recognised that too much additional nutrient provision can sometimes be more harmful than no nutrition support, yet much of the literature pre-dates this change in thinking.

The GDG also encountered methodological problems with the available nutritional research, including:

a. Significant heterogeneity in the outcomes reported (e.g. for one type of intervention, 5 separate studies may use 5 different indicators to report change in nutritional status).
b. Lack of information on the period prior to starting nutrition support despite the fact that the duration and intensity of starvation before intervention is clearly pertinent to any outcome.
c. Study periods which were often too short to determine the true effect of any intervention (e.g. reporting change in body weight two weeks after prescribing a oral nutritional supplement may not be long enough to establish whether the patient benefits in the long term).

d. Weak characterisation of patient populations in terms of underlying diagnosis, illness severity or degree of malnutrition.
e. Lack of information on the amount of feed actually received by patients and/ or the wide variation in the amount received (a particular weakness of older enteral feeding studies).
f. The presence of many potentially confounding issues when reporting outcomes attributed by authors to nutritional intervention in small trials (e.g. infection rates and mortality).
g. The predominance of evidence from limited acute or chronic care settings with complete absence of evidence from other settings makes generalisation of conclusions difficult.

In view of the above, many questions related to nutrition support may be better addressed by study designs other than RCTs but the broad scope of these Guidelines and the difficulties with handling the biases associated with observational studies prevented the GDG from formally searching for sources of non-RCT evidence. In the absence of evidence from RCT's many of the clinical questions have therefore been addressed using expert opinion and consensus techniques.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Key Priorities for Implementation

The following recommendations have been selected from the full list as priorities for implementation.

Key Clinical Priorities

- Screening for malnutrition and the risk of malnutrition should be carried out by healthcare professionals with appropriate skills and training.
- All hospital inpatients on admission and all outpatients at their first clinic appointment should be screened. Screening should be repeated weekly for inpatients and when there is clinical concern for outpatients. People in care homes should be screened on admission and when there is clinical concern.
- Hospital departments who identify groups of patients with low risk of malnutrition may opt out of screening these groups. Opt-out decisions should follow an explicit process via the local clinical governance structure involving experts in nutrition support.
- Nutrition support should be considered in people who are malnourished, as defined by any of the following:
    - A body mass index (BMI) of less than 18.5 kg/m^2
    - Unintentional weight loss greater than 10% within the last 3 to 6 months
    - A BMI of less than 20 kg/m^2 and unintentional weight loss greater than 5% within the last 3 to 6 months.
- Nutrition support should be considered in people at risk of malnutrition, defined as those who have:

    - Eaten little or nothing for more than 5 days and/or are likely to eat little or nothing for 5 days or longer
    - A poor absorptive capacity and/or high nutrient losses and/or increased nutritional needs from causes such as catabolism.
- Healthcare professionals should consider using oral, enteral or parenteral nutrition support, alone or in combination, for people who are either malnourished or at risk of malnutrition, as defined above. Potential swallowing problems should be taken into account.

Key Organisational Priorities

- All healthcare professionals who are directly involved in patient care should receive education and training, relevant to their post, on the importance of providing adequate nutrition.
- Healthcare professionals should ensure that all people who need nutrition support receive coordinated care from a multidisciplinary team.
- All acute hospital trusts should employ at least one specialist nutrition support nurse.
- All hospital trusts should have a nutrition steering committee working within the clinical governance framework.

Implementation in the National Health Service

The Healthcare Commission will assess the performance of National Health Service (NHS) organisations in meeting core and developmental standards set by the Department of Health in Standards for better health issued in July 2004.

Suggested audit criteria based on the key priorities for implementation are listed in Appendix D of the original guideline document (short version), and can be used to audit practice locally.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Clinical Algorithm
Patient Resources
Quick Reference Guides/Physician Guides
Slide Presentation

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

National Collaborating Centre for Acute Care. Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. London (UK): National Institute for Health and Clinical Excellence; 2005 Nov. 451 p. [384 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

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GUIDELINE DEVELOPER(S)

National Collaborating Centre for Acute Care - National Government Agency [Non-U.S.]

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National Institute for Health and Clinical Excellence (NICE)

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The Guideline Development Group was asked to declare any possible conflict of interest and none that could interfere with their work on the guideline were declared. All documentation is held by the National Collaborating Centre for Acute Care.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) format from the National Institute for Health and Clinical Excellence (NICE) Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- National Collaborating Centre for Acute Care. Nutrition support in adults. Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. London (UK): National Institute for Health and Clinical Excellence (NICE); 2006 Feb. 54 p. (Clinical guideline; no. 32). Electronic copies: Available in Portable Document Format (PDF) format from the National Institute for Health and Clinical Excellence (NICE) Web site.
- Nutrition support in adults. Oral nutrition support, enteral tube feeding and parenteral nutrition. Quick reference guide. National Collaborating Centre for Acute Care; 2006 Feb. 25 p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site.

Print copies: Available from the National Health Service (NHS) Response Line 0870 1555 455. ref: N0977. 11 Strand, London, WC2N 5HR.

The following are also available:

- National Institute for Health and Clinical Excellence. Nutrition support in adults: oral supplements, enteral and parenteral feeding. Costing template (England). London (UK): National Institute for Health and Clinical Excellence (NICE); 2006 Feb. Various p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site.
- National Institute for Health and Clinical Excellence. Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. Costing report. London (UK): National Institute for Health and Clinical Excellence (NICE); 2006 Feb. 45 p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site.
- National Institute for Health and Clinical Excellence. Nutrition support in adults. Presenter slides. London (UK): National Institute for Health and Clinical Excellence (NICE); 2006 Feb. 28 p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site.
- National Institute for Health and Clinical Excellence. Implementation advice. Suggested actions for implementing the NICE clinical guideline on nutrition support in adults. London (UK): National Institute for Health and Clinical Excellence (NICE); 2006 Feb. 17 p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site.

PATIENT RESOURCES

The following is available:

- Nutrition support in adults. Understanding NICE guidance – information for people who need nutrition support, their families and carers, and the public. National Institute for Health and Clinical Excellence (NICE), 2006 Feb. 17 p.

Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site.

Print copies: Available from the National Health Service (NHS), 11 Strand, London, WC2N 5HR. Response Line 0870 1555 455, ref N0978.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

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This summary was completed by ECRI on April 20, 2006. The information was verified by the guideline developer on September 4, 2006.

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