Nutrition support in adults: oral supplements, enteral and parenteral feeding

NICE guideline

Second draft for consultation, August 2005

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

Contents

Introduction

Malnutrition is a state in which a deficiency of energy, protein and/or other nutrients causes measurable adverse effects on tissue/body form, composition, function or clinical outcome (in these guidelines we do not use the term to cover excess nutrient provision).

Malnourishment is both a cause and a consequence of ill health. It is common and increases a patient's vulnerability to disease. Nutrition support as:

- oral interventions; fortified food, additional snacks and or sip feeds
- and/or enteral tube feeding (ETF); the delivery of a nutritionally complete feed directly into the gut via a tube
- and/or parenteral nutrition (PN); the administration of nutrients by the intravenous route

can improve outcomes but decisions on the most effective and safe means to do so are complex. Currently, the clinician's knowledge of the causes, effects and treatment of malnourishment among UK healthcare professionals is poor. Guidelines are therefore needed to emphasise the following:

- undernutrition is common
- malnourishment increases a patient's vulnerability to disease and further complication
- decisions on providing nutrition support are complex and thus there is a wide variation in nutritional care standards.

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

Patient-centred care

This guideline offers best practice advice on the care of adults who are malnourished or at risk of malnutrition.

Treatment and care should take into account patients' individual needs and preferences. People who are malnourished or at risk of malnutrition should be involved with making informed decisions about their care and treatment. Where patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – *Reference guide to consent for examination or treatment* (2001) (available from www.dh.gov.uk).

Good communication between healthcare professionals and patients is essential. It should be supported by the provision of evidence-based information offered in a form that is tailored to the needs of the individual patient. The treatment, care and information provided should be culturally appropriate and in a form that is accessible to people who have additional needs, such as people with physical, cognitive or sensory disabilities, and people who do not speak or read English.

Unless specifically excluded by the patient, carers and/or relatives should be consulted regarding care and treatment and their views taken into account in the decision making process.

Carers and relatives should also be provided with the information and support they need.

Key priorities for implementation

The following recommendations have been identified as priorities for implementation.

- All healthcare workers in hospital and the community who are directly involved in patient care should receive training in:
  - the importance of nutrition (for patients)
  - the indications for nutrition support and its delivery (routes, mode of access, prescription)
  - when and where to seek expert advice on nutrition support
- All hospital inpatients on admission and all outpatients at their first clinic appointment should be screened for the presence or risk of malnutrition. Screening should be repeated weekly for inpatients and as indicated clinically for outpatients. Departments who identify groups of patients with low risk of malnutrition may opt-out of screening for those groups although opt-out decisions should follow an explicit process via the local clinical governance structure involving experts in nutrition support.
- All residents or patients in care homes should be screened for the presence or risk of malnutrition on admission and whenever there is clinical concern (for example, patients with 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).
- Healthcare professionals should consider interventions to improve oral intake to patients who can swallow safely and who are:
  - malnourished (BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), or
  - at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days).

- Patients with any of the obvious or less obvious indicators for dysphagia should be referred to healthcare professionals with specialist training in the diagnosis, assessment and management of swallowing disorders, for example speech and language therapists, gastroenterologists, radiologists, neurologists, specialist nurses.

- Healthcare professionals should consider enteral tube feeding in patients who have a functional, tube accessible gastrointestinal tract and who despite the use of oral interventions if appropriate, still have an inadequate or unsafe oral intake and are:

  – malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss >10% within the previous 3–6 months or BMI <18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), and/or
  – at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days).

- Healthcare professionals should consider parenteral nutrition in patients who have a non-functional and /or inaccessible gastrointestinal tract such that they cannot be adequately fed by other means and are:

  – malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months), or
  – at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days).

- Healthcare professionals who are appropriately skilled and trained and have knowledge of nutritional requirements and nutrition support (dietitians, pharmacists) should ensure that the total nutrient intake (that is, from any food, oral fluid, oral supplements, enteral feeds and IV fluid/PN) accounts for:

  – energy, protein, fluid, electrolyte, mineral and micronutrients needs,
  – activity levels and the underlying clinical condition.
  – metabolic instability, risk of refeeding problems

  - how much nutrition support is being delivered and the potential of poor tolerance of feeds
  - the likely duration of nutrition support.

- Patients who meet the criteria in Table should be considered to be at very high risk of refeeding problems.

- Healthcare professionals involved in the provision of nutrition support should ensure that there is a review of the indications for, route of and goals of nutrition support daily or twice weekly until the patient is stabilised on nutrition support. Patients receiving long term support should have a similar review every 3–6 months until nutrition support is no longer required.

The following guidance is evidence based. Appendix A shows the grading scheme used for the recommendations: A, B, C, D or good practice point – D(GPP). A summary of the evidence on which the guidance is based is provided in the full guideline (see Section 5).

1 Guidance

1.1 Organisation of nutrition support

1.1.1.1 All healthcare workers in hospital and the community who are directly involved in patient care should receive training in:

- the importance of adequate nutrition (for patients)
- the indications for nutrition support and its delivery (routes, mode of access, prescription)
- when and where to seek expert advice on nutrition support. **[D(GPP)]**

1.1.1.2 Healthcare professionals should ensure that patients in hospital and the community who require nutrition support are provided with coordinated multi-disciplinary care. This should include close liaison between clinician responsible, pharmacists, dietitians, specialist nutrition and district nurses, patients, carers, caterers, GPs and other allied healthcare professionals as appropriate (for example, speech and language therapists). **[D (GPP)]**

1.1.1.3 Healthcare professionals should ensure hospitals and care homes provide:

- food and fluid of adequate quantity and quality in an environment conducive to eating
- appropriate support (for example, modified eating aids) to those patients who can potentially chew and swallow but who are unable to feed themselves. **[D (GPP)]**

1.1.1.4 All hospitals should consider the employment of at least one specialist nutrition support nurse to:

- coordinate ward based training, as appropriate
- ensure that hospital protocols optimise nutritional care and minimise complications are followed, and
- co-ordinate care within hospital and the community. **[D (GPP)]**

1.1.1.5 Trusts should have a Nutrition Steering Committee to ensure that all patients' nutritional needs are met using nutrition support as appropriate in the safest and most cost-effective manner. Members should include senior representation from Trust management, catering, dietetics, nursing and the nutrition support team and should work within the Governance framework. **[D(GPP)]**

1.2 Nutritional assessment and 'screening'

1.2.1.1 Nutritional assessment and screening should be carried out by healthcare professionals with appropriate training and skills to help generate the confidence of patients and enable accurate data collection. **[D(GPP)]**

1.2.1.2 All hospital inpatients on admission and all outpatients at their first clinic appointment should be screened for the presence or risk of malnutrition. Screening should be repeated weekly for inpatients and as indicated clinically for outpatients. Departments who identify groups of patients with low risk of malnutrition may opt-out of screening for those groups although opt-out decisions should follow an explicit process via the local clinical governance structure involving experts in nutrition support. **[D(GPP)]**

1.2.1.3 All residents or patients in care homes should be screened for the presence or risk of malnutrition on admission and whenever there is clinical concern (for example, patients with 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). **[D(GPP)]**

1.2.1.4 Patients on initial registration at general practice and where there is clinical concern should be screened for risk of or existing malnutrition (for example, patients with 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)]**

1.2.1.5 All screening should be undertaken using a tool that includes BMI, percentage weight loss and consideration of the time over which nutrient intake has been reduced and/or the likelihood of future

impaired nutrient intake (for example, the Malnutrition Universal Screening Tool, MUST [1]). **[D(GPP)]**

[1] For more information visit: www.bapen.org.uk/the-must.htm

1.3 Indications for nutrition support

1.3.1.1 Nutrition support should be considered in patients when:

- the patient has eaten very little amounts for the last 5 days or more, or
- the patient is very unlikely to eat more than very little amounts for the next 5 days or more (whatever current BMI or history of weight loss), or
- the patient's BMI is < 18.5 kg/m^2, or
- the patient has unintentionally lost > 10% body weight within the previous 3–6 months, or
- the patient has a BMI < 20 kg/m^2 with unintentional weight loss > 5% within the previous 3–6 months, or
- the patient has poor absorptive capacity, is catabolic and/or has high nutrient losses and or has a condition that increases their nutritional needs, for example hyper mobility. **[D(GPP)]**

1.3.1.2 Healthcare professionals should ensure that cultural, ethical and legal issues are considered when any decisions regarding the nutrition support of patients are made. **[D(GPP)]**

1.3.1.3 For ethical considerations of providing nutrition support see guidance issued by the General Medical Council (available from www.gmc-uk.org) and the Department of Health guidelines – *Reference guide to consent for examination or treatment* (2001) (available from www.dh.gov.uk).. **[D(GPP)]**

1.3.1.4 For issues addressing patient competence and consent see guidance issued by the General Medical Council (available from www.gmc-uk.org) and the Department of Health guidelines – *Reference guide to consent for examination or treatment* (2001) (available from www.dh.gov.uk). **[D(GPP)]**

1.3.1.5 Healthcare professionals should ensure that there is a review of the indications for, route of and goals of nutrition support daily or twice

weekly until the patient is stabilised on nutrition support and or every 3–6 months and/or until nutrition support is no longer required. **[D(GPP)]**

1.3.1.6 Healthcare professionals should ensure that patients having nutrition support along with their carers are kept fully informed about their treatment and have access to appropriate information and/or the opportunity to discuss diagnosis and treatment options. **[D(GPP)]**

1.3.1.7 Information on nutrition support should be provided in formats, languages and ways that are suited to an individual's requirements. Consideration should be given to the cognitive ability, gender, physical needs, culture, ethnicity and stage of life of the individual. **[D(GPP)]**

1.4 What to give

1.4.1.1 Healthcare professionals who are appropriately skilled and trained and have knowledge of nutritional requirements and nutrition support (dietitians, pharmacists) should ensure that the total nutrient intake (that is, from any food, oral fluid, oral supplements, enteral feeds and IV fluid/PN) accounts for:

- energy, protein, fluid, electrolyte, mineral and micronutrients needs
- activity levels and the underlying clinical condition
- metabolic instability, risk of refeeding problems
- how much nutrition support is being delivered and the potential of poor tolerance of feeds
- the likely duration of nutrition support. **[D(GPP)]**

1.4.1.2 For patients who are clinically stable, the suggested nutritional prescription for total intake (that is, from any food, oral fluid, oral supplements, enteral feeds and IV fluid/PN) should have:

- 20–30 kcal/kg/day total energy (including that derived from protein)
- 1–1.5 g protein/kg/day
- 30–35 ml fluid/kg (with allowance for extra losses from drains, fistulae, etc. and extra input from other sources, for example IV drugs) and
- considered the need for additional electrolytes, minerals and micronutrients in patients with pre-existing deficits, high losses or increased demands. **[D(GPP)]**

1.4.1.3 The prescription must be reviewed at each stage of the patient's illness and great care must be taken when:

- using food fortification which tends to supplement energy and/or protein without adequate micronutrients and minerals

- using feeds and supplements that are apparently complete but do not meet all daily micronutrient and mineral needs unless they are also meeting full energy needs.
- using pre-mixed PN bags that have not had tailored additions from pharmacy. **[D(GPP)]**

1.4.1.4 Patients requiring enteral or parenteral nutrition support who are seriously ill or injured should have an initial prescription devised that cautiously introduces nutrition support at 50% or less of normal energy and protein requirements according to metabolic and gastrointestinal tolerance. **[D(GPP)]**

1.4.1.5 Patients who are severely malnourished (for example, BMI < 18.5 kg/m^2 and/or unintentional weight loss > 10% in previous 3–6 months) and those with very little intake for > 5 days should have nutrition support introduced at a maximum of 20 kcal/kg/day for the first 2 days, gradually increasing to meet estimated needs by 4–6 days. **[D(GPP)]**

1.4.1.6 Patients who meet the criteria in Table 1 should be considered to be at very high risk of refeeding problems. **D(GPP)]**

Table 1 Criteria for determining patients at risk of refeeding problems

Patient has one or more of the following:
BMI < 16 kg/m^2
Unintentional weight loss > 15%
Very little nutritional intake for > 10 days
Low levels of potassium, phosphate or magnesium prior to feeding
Or patient has two or more of the following:
BMI < 18.5 kg/m^2
Weight loss > 10%
Very little nutritional intake for > 5 days
A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

1.4.1.7 Patients at very high risk of refeeding problems (Table 1) should be looked after by healthcare professionals who are appropriately skilled and trained and have expertise knowledge of nutritional requirements and nutrition support to ensure that the prescription devised considers:

- start nutrition support at a maximum of 10 kcal/kg/day, increasing levels slowly to meet or exceed full needs by 5 to 10 days.
- use only 5 kcal/kg/day in extreme cases (for example, BMI < 14 kg/m^2 or negligible intake for > 15 days) and monitor cardiac rhythm continually in these patients and any others who already have or develop any cardiac arrhythmias.
- restore circulatory volume and monitor fluid balance and overall clinical status closely
- provide immediately before and during the first 10 days of feeding thiamine 100 mg q.d.s, vitamin B co strong 1 b.d. (or full

dose daily IV vitamin B preparation if necessary) and a balanced multi-vitamin/trace element supplement 1 o.d.

- provide oral, enteral or IV supplements of potassium (likely requirement 2–4 mmol/kg/day), phosphate (likely requirement 0.3–0.6 mmol/kg/day) and magnesium (likely requirement 0.2–0.4 mmol/kg/day) unless pre-feeding plasma levels are high. Pre-feeding correction of low plasma levels is unnecessary. **[D(GPP)]**

1.5 Monitoring

1.5.1.1 Healthcare professionals should ensure that there is a review of the indications for, route of and goals of nutrition support at least twice weekly until the patient is stabilised on nutrition support. Patients receiving long term support should have a similar review every 3–6 months until nutrition support is no longer required. **[D(GPP)]**

1.5.1.2 Patients having nutrition support in hospital should be monitored by healthcare professionals with the relevant competencies in nutritional monitoring (for example, nurse, dietitian, physician and laboratory specialists). **[D(GPP)]**

1.5.1.3 Healthcare professionals should consider the protocols for nutritional, anthropometric and clinical monitoring (Table 2) for patients on nutrition support in hospital. **[D(GPP)]**

1.5.1.4 Healthcare professionals should consider the protocols for laboratory monitoring (Table 3) of patients on nutrition support in hospital. Table 3 is specifically applicable to patients receiving parenteral nutrition. It could also be selectively applied to patients receiving enteral or oral nutrition support especially if patients are unstable or are at risk of refeeding syndrome. The frequency and extent of these observations may need adapted for patients who are acutely ill or metabolically unstable. **[D(GPP)]**

1.5.1.5 Patients having parenteral nutrition support in the community need regular expert assessment and monitoring. This should be carried out by home care nutrition nurse specialists and/or by experienced hospital teams (initially at least weekly), using observations marked* in Table 2. In addition they should be monitored at a specialist hospital clinic at least every 3–6 months, more frequently during the early months of HPN, when the full range of tests in Tables 2 and 3 should be performed. Some of the clinical observations may be checked by patients or carers daily. **[D(GPP)]**

1.5.1.6 Patients having oral and/or enteral nutrition support in the community should be monitored by healthcare professionals with the relevant competencies in nutritional monitoring (for example, community nurse, dietitian and GP). This group of patients should be monitored every 3–6 months and/or if there is any change in their clinical condition since their last review. A limited range of observations and tests should be performed selected from Tables 2 and 3. Some of the clinical observations may be checked by patients or carers daily. If clinical progress is satisfactory, laboratory tests are rarely required. **[D(GPP)]**

1.5.1.7 Where long-term nutritional support is required patients and/or 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. **[D(GPP)]**

Table 2 Hospital protocol (and community protocol*) for nutritional, anthropometric and clinical monitoring for patients receiving nutrition support by oral, enteral and/or parenteral routes

Parameter	Frequency	Rationale
Nutritional		
Nutrient intake from oral, enteral or parenteral nutrition (including any change in conditions that are affecting food intake)*	Daily initially, reducing to 2x/week when stable, and then monthly for long term feeding in the community	To ensure that patient is receiving nutrients to meet requirements and that current method of feeding is still the most appropriate. To allow alteration of feed/diet as indicated by monitoring
Actual volume of feed delivered*	Daily initially, reducing to 2x/week when stable	To ensure that patient is receiving correct volume of feed. To allow troubleshooting of any problems
Fluid balance charts (enteral and parenteral)	Daily initially, reducing to 2x/week when stable	To ensure patient is not/is not becoming over/under hydrated
Anthropometric		
Weight*	Daily if concerns re fluid balance otherwise weekly reducing to monthly	To assess ongoing nutritional status, determine whether nutritional goals are being achieved and take into account both body fat and muscle
BMI*	Start of feeding and then monthly	
Mid arm circumference*	Monthly – in patients where weight cannot be obtained or is difficult to interpret	

Parameter	Frequency	Rationale
Triceps skinfold thickness	Monthly- in patients where weight cannot be obtained or is difficult to interpret	
GI function		
Nausea/vomiting*	Daily initially reducing to 2x/week	To ensure tolerance of feed
Diarrhoea*	Daily initially reducing to 2x/week	To rule out any other causes of diarrhoea and then assess feeding
Constipation*	Daily initially reducing to 2x/week	Rule out other causes of constipation and then assess feed
Abdominal distension	As necessary	Assess tolerance of feed
Enteral tube – nasally inserted		
Tube position (pH <5.5 using pH paper)*	Before each feed begins	To ensure tube in correct position
Nasal erosion*	Daily	To ensure tolerance of tube
Fixation (is it secure)*	Daily	Help prevent tube becoming dislodged
Is tube in working order (all pieces intact, tube blocked/kinked)*	Daily	Ensure tube is in working order
Tube – gastrostomy or jejunostomy		To ensure site not infected/red

Parameter	Frequency	Rationale
Stoma site*	Daily	no signs of gastric leakage
Tube position (length at external fixation) (gastrostomy)*	Daily Weekly	To ensure tube has not migrated from/into stomach and external overganulation
Tube rotation (gastrostomy only)*	At insertion	Prevent internal over granulation
Balloon water volume (balloon retained gastrostomies only)*	Daily	To prevent tube falling out
Exact small bowel position (jejunostomy)	Daily	Confirmation of initial position
Parenteral nutrition Line site*	Daily	Signs of infection/inflammation
Skin over position of line tip (peripherally fed patients)*		Signs of thrombophlebitis

Parameter	Frequency	Rationale
Clinical condition		
General condition (including skin condition)*	Daily	To ensure that patient is tolerating feed and that feeding and route continue to be appropriate
Temperature/blood pressure	Daily initially	Sign of infection/fluid balance
Drug therapy*	Daily initially reducing to monthly when stable	Appropriate preparation of drug (to reduce incidence of tube blockage). To prevent/reduce drug nutrient interactions
Long/short term goals		
Are goals being met*	Daily initially reducing to 2x/week and then monthly?	To ensure that feeding is appropriate to overall care of patient
Are goals still appropriate*		

Table 3 Hospital protocol for laboratory monitoring patients on nutrition support

Parameter	Frequency	Rationale	Interpretation
Sodium, potassium, urea, creatinine	Baseline Daily till stable Then 1–2X weekly	Assessment of renal function, fluid status, and Na and K status	Interpret with knowledge of fluid balance and medication Urine Na may be helpful in complex cases with gastrointestinal fluid loss
Glucose	Baseline 1–2X daily (or more if required) till stable Then weekly	Glucose intolerance is common	Good glycaemic control is necessary
Magnesium, phosphate	Baseline Daily if risk of refeeding syndrome 3X weekly till stable Then weekly	Depletion is common and under recognised	Low concentrations indicates poor status
Liver function tests	Baseline 2X weekly till stable Then weekly	Abnormalities common during IVN	Complex. May be due to sepsis, other disease or nutritional intake
Calcium, albumin	Baseline Then weekly	Hypocalcaemia or hypercalcaemia may occur	Correct measured serum calcium concentration for albumin Hypocalcaemia may be secondary to Mg deficiency Low albumin reflects disease not protein status
Prealbumin	Baseline Then weekly	Short half-life marker of protein status	Affected by APR Especially useful in HPN
C-reactive protein	Baseline 2–3X weekly till stable	Assists interpretation of protein, trace element and vitamin results	Trend of results is important

Parameter	Frequency	Rationale	Interpretation
Zinc, copper#	Baseline Then every 2–4 weeks, depending on results	Deficiency common, especially when increased losses	Patients most at risk when anabolic. APR causes Zn ↓ and Cu ↑
Selenium#	Baseline if risk of depletion Further results dependent on baseline	Se deficiency likely in severe illness and sepsis, or long term nutrition support	APR causes Se↓ Long term status better assessed by glutathione peroxidase
Full blood count and MCV	Baseline 1–2X weekly till stable Then weekly	Anaemia due to iron or folate deficiency is common	Effects of sepsis may be important Iron status difficult if APR (Fe↓, ferritin↑)
Folate, B12#	Baseline Then every 2–4 weeks	Folate deficiency is common	Serum folate/B12 sufficient, with FBC
Manganese*§	Every 3–6 months if on HPN	Excess provision to be avoided- more likely if liver disease	Red blood cell or whole blood better measure of excess than plasma
25-OH Vit D*§	6 monthly if on long-term support	Low if house-bound	Requires normal kidney function for effect
Bone densitometry*§	On starting HPN Then every 2 years	Metabolic bone disease diagnosis	Together with lab tests for metabolic bone disease

Tests marked with § are primarily required for patients on parenteral nutrition in the community.

Tests marked with # are rarely required in patients having enteral nutrition (in hospital or in the community), unless there is cause for concern.

1.6 Oral nutrition support

Indications for oral nutrition support

1.6.1.1 Healthcare professionals should consider interventions to improve oral intake to patients who can swallow safely and who are:

- malnourished (BMI <18.5 –20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), or
- at risk of malnutrition (eaten very little for > 5 days and/or unlikely to eat more than very little amounts for the next 5 days). **[A]**

1.6.1.2 Healthcare professionals should aim to ensure that the overall nutrient intake of oral nutritional interventions offered to patients contain a balanced mixture of protein energy, vitamins and minerals. **[D(GPP)]**

1.6.1.3 For patients where there is concern about the adequacy of micronutrient intake, a complete oral multi vitamin and mineral supplement providing the reference nutrient intake for all vitamins and trace elements should be considered by healthcare professionals with the relevant competencies in nutrition support who are able to determine the nutritional adequacy of a patient's dietary intake. **[D(GPP)]**

Oral nutrition support for surgical patients

1.6.1.4 Pre- and post-operative oral nutrition support should be considered for malnourished surgical patients (BMI < 18.5 kg/m^2 and weight loss > 10% within the previous 3–6 months or BMI 18.5–20 kg/m^2 and weight loss > 5% within the previous 3–6 months. **[B]**

1.6.1.5 Healthcare professionals can provide post caesarean or gynaecological surgical patients some oral intake within 24 hours of surgery. **[A]**

1.7 Patients with dysphagia

1.7.1.1 Patients with any of the obvious or less obvious indicators for dysphagia (Table 4) should be referred to healthcare professionals with specialist training in the diagnosis, assessment and management of swallowing disorders, for example speech and language therapists, gastroenterologists, radiologists, neurologists, specialist nurses. **[D(GPP)]**

Table 4 Obvious and less obvious indicators for dysphagia

Obvious indicators	**Less obvious indicators**
Patient reports difficulty and/or painful chewing and/or swallowing	Change in respiration pattern
Regurgitation of undigested foodstuffs	Unexplained temperature spikes
Difficulty controlling food and/ or liquid in the mouth	Wet voice quality
Drooling	Tongue fasciculation (may be indicative of motor neurone disease)
Hoarse voice	Xerostomia
Coughing and/or choking before, during, or after swallowing	Heartburn
Globus sensation	Change in eating – for example, eating slowly or avoiding social occasions
Nasal regurgitation	Frequent throat clearing
Feeling of obstruction	Recurrent chest infections
Unexplained/involuntary weight loss	Atypical chest pain

1.7.1.2 Healthcare professionals should recognise that patients 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)]**

1.7.1.3 When managing patients with dysphagia, healthcare professionals with relevant competencies in swallowing assessment/management should consider:

- risk/benefits of the feeding options for each individual (oral, for example modified consistency and or enteral nutrition support)
- factors listed in Table 5. **[D(GPP)]**

Table 5 Factors to be considered before any modification on nutrition and hydration methods

Recurrent chest infections
Mobility
Dependency on others for assistance to eat
Perceived palatability and appearance of food/drink for the patient
Level of alertness
Compromised physiology
poor oral hygiene
Compromised medical status
Metabolic and nutritional requirements
Vulnerability (for example, immunocompromised)
Co-morbidities

1.7.1.4 For patients with dysphagia, healthcare professionals with relevant experience in swallowing problems and drug administration should perform a drug review to ascertain if the current drug formulation, route and timing of administration remain the most appropriate and without contraindications for either the feeding regimen or drug therapy. **[D(GPP)]**

1.7.1.5 Healthcare professionals with the relevant competencies in swallow assessment/management should regularly monitor and reassess patients having modified diets until the patient is stabilised. **[D (GPP)]**

1.8 Enteral nutrition support

For the purposes of this Guideline, enteral tube feeding (ETF) refers to the delivery of a nutritionally complete feed (containing protein or amino acids, carbohydrate +/– fibre), fat, water, minerals and vitamins) via a tube directly into the stomach, duodenum or jejunum.

Indications for enteral nutrition support

1.8.1.1 Healthcare professionals should consider enteral tube feeding in patients who have a functional, tube accessible gastrointestinal tract and who despite the use of oral interventions if appropriate, still have an inadequate or unsafe oral intake and are:

- malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss >10% within the previous 3–6 months or BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), and/or
- at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days). **[D (GPP)]**

1.8.1.2 Elective enteral tube feeding should not be given to patients unless it is either in the context of a clinical trial or they present with the indications for enteral feeding:

- a functional, tube accessible gastrointestinal tract and an inadequate or unsafe oral intake and
- malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss >10% within the previous 3–6 months or BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), and/or
- at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days). **[A]**

Enteral nutrition support for surgical patients

1.8.1.3 Malnourished surgical patients (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months) who are due to undergo major abdominal procedures should be considered for pre-operative enteral tube feeding. **[B]**

1.8.1.4 General surgical patients who are expected to resume normal oral intake within 5 days should not have enteral tube feeding within 48 hours post-surgery outside the context of a clinical trial unless they have a functional, tube accessible gastrointestinal tract and an inadequate or unsafe oral intake and:

- malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months or BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), and/or
- at risk of malnutrition (eaten very little for > 5 days and/or unlikely to eat more than very little amounts for the next 5 days). **[A]**

1.8.1.5 Healthcare professionals should consider enteral tube feeding in post surgical patients who have a functional, tube accessible gastrointestinal tract and an inadequate or unsafe oral intake and:

- malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months or BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months), and/or
- at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days). **(D[GPP)**

Enteral route of access

1.8.1.6 General medical, surgical and intensive care patients should be fed via a tube into the stomach unless there is upper gut dysfunction. **[A]**

1.8.1.7 Patients with upper gut dysfunction (or an inaccessible upper GI tract) should be considered for post-pyloric (duodenal/jejunal) feeding. **[D(GPP)]**

1.8.1.8 Gastrostomy feeding should be considered in patients likely to need long-term (4 weeks) enteral tube feeding. **[D(GPP)]**

1.8.1.9 PEG tubes which have been placed without apparent complications can be used four hours after insertion. **[A]**

Patients with dysphagia

1.8.1.10 In the acute setting, for example following stroke, patients unable to swallow safely or take sufficient energy and nutrients orally, should have an initial 2–4 week trial of nasogastric tube feeding. Healthcare professionals with the relevant competencies in nutrition support and swallow assessment/ management should assess the prognosis and the appropriateness of future options for feeding. **[A]**

Enteral mode of delivery

1.8.1.11 For patients being fed into the stomach, either bolus or continuous methods should be considered, taking into account patient preference, convenience and drug administration. **[B]**

1.8.1.12 For patients in intensive care, nasogastric tube feeding should usually be delivered continuously over 16–24 hours daily. Where insulin administration is required it is safe and more practical to administer feeding continuously over 24 hours. **[D(GPP)]**

Enteral feeding and motility agents

1.8.1.13 For patients in intensive care with delayed gastric emptying who are not tolerating enteral feeding a motility agent should be considered unless there is suspicion of gastrointestinal obstruction or a pharmacological cause. **[A]**

1.8.1.14 Patients in other acute care settings who have delayed gastric emptying and are not tolerating enteral feeding should also be offered a motility agent unless there is suspicion of gastrointestinal obstruction or a pharmacological cause. **[D(GPP)]**

1.8.1.15 If patients have delayed gastric emptying which severely limits feeding into the stomach, despite the use of motility agents, post-pyloric ETF and/or PN will need to be considered. **[D(GPP)]**

Management of enteral feeding tubes

1.8.1.16 Patients requiring enteral tube feeding should have the enteral feeding tube inserted by healthcare professionals with the relevant competencies in passing and managing enteral tube feeds(or by trainees under their direct supervision). **[D(GPP)]**

1.8.1.17 The position of all NG tubes should be confirmed after placement and before each time of use by aspiration and pH 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 (for example, unchanged length of tube, absence of any apparent ETF related complications) which permit ETF to proceed when the ability to make repeat checks of the tube position are limited by inability to aspirate the tube or the checking of pH is invalid because of gastric acid suppression. **[D(GPP)]**

1.8.1.18 The initial placement of post-pyloric tubes requires an abdominal X-ray with protocol agreed clinical checks before repeated use. **[D(GPP)]**

1.9 Parenteral nutrition support

Indications for parenteral nutrition support

1.9.1.1 Healthcare professionals should consider parenteral nutrition in patients who have a non-functional and/or inaccessible gastrointestinal tract such that they cannot be adequately fed by other means and are:

- malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months), or
- at risk of malnutrition (eaten very little for > 5 days and/or unlikely to eat more than very little amounts for the next 5 days). **[D(GPP)]**

Prescription of parenteral nutrition

1.9.1.2 The introduction of PN should be progressive, usually starting at a maximum of 50% of estimated needs with close monitoring. Parenteral nutrition can be withdrawn once patients are tolerating adequate nutrition orally or enterally and whose nutritional status is stable. Withdrawal should be planned and stepwise with a daily review of the patient's progress. **[D(GPP)]**

1.9.1.3 PN should be stopped when the patient is established on adequate oral and/or enteral support. There is no minimum appropriate length of time for duration of PN and even stopping after only 1 or 2 days, should not infer that it was started unnecessarily. **[D(GPP)]**

1.9.1.4 Patients prescribed standardised PN should have their nutritional requirements determined by healthcare professionals with the relevant competencies in the prescription of nutrition support before selection of a particular parenteral nutrition product. The addition of vitamins and trace elements is always required and occasionally additional electrolytes and other nutrient supplements. Additions must be made under appropriate pharmaceutically controlled environmental conditions before administration. **[D(GPP)]**

Parenteral nutrition support for surgical patients

1.9.1.5 For surgical patients who have limited gut function and who are already severely malnourished (that is, BMI < 18.5 kg/m^2 and have unintentional weight loss > 10% within the previous 3–6 months) elective supplementary pre- and/or post-operative PN should be considered. **[B]**

1.9.1.6 Peri-operative supplementary parenteral nutrition should not be given to surgical patients who are neither severely malnourished (BMI > 18.5, no history of weight loss > 10%) nor at particular risk of malnourishment (have had some food intake during last 5 days and are likely to have some food intake within 5 days). **[B]**

1.9.1.7 In the presence of inadequate intestinal tolerance ETF should be supported with or replaced by PN which is equally safe if undertaken by experts. **[B]**

Parenteral nutrition route of access

1.9.1.8 Patients having PN in hospital can have a peripherally inserted central catheter (PICC) as an alternative to a centrally placed central venous catheter. A free dedicated lumen in a multi-lumen centrally placed catheter can also be used in hospital PN. **[B]**

1.9.1.9 Administration of PN via a peripheral venous catheter can be considered for patients who are likely to require short term PN (< 14 days) who have no need for central access for other reasons. Attention to pH, tonicity and long term compatibility of the PN admixture should be considered to avoid stability or administration problems. **[B]**

1.9.1.10 Tunneling subcutaneous catheters is recommended for long term use (> 14 days). **[D(GPP)]**

1.9.1.11 Tunneling catheters is not recommended for short term use (14 days). **[D(GPP)]**

Parenteral nutrition mode of delivery

1.9.1.12 Continuous administration of parenteral nutrition should be offered as the preferred method for infusion in most severely ill patients who require this method of nutrition support. **[B]**

1.9.1.13 Cyclical delivery of PN should be considered when using peripheral venous cannulae with planned routine catheter change. **[B]**

1.9.1.14 A gradual change from continuous to cyclical PN administration should be considered in patients requiring PN support for periods of more than 2 weeks. **[D(GPP)]**

Management of catheter use for parenteral nutrition

1.9.1.15 Healthcare professionals competent in catheter placement should be responsible for placement of catheters and should be aware of the importance of monitoring and managing these safely. [2] **[D(GPP)]**

[2] For guidance on prevention of infections when placing, monitoring and managing catheters refer to the NICE Infection Control guideline (2003).

1.10 Nutrition support in the community

1.10.1.1 All patients on enteral tube feeding in the community should be supported by coordinated multidisciplinary care, which includes input from dietitians and district, care home or homecare company nurses and other allied healthcare professionals (for example, speech and language therapists) as appropriate. Close liaison with patients, carers and GPs regarding diagnoses, arrangements and potential problems is essential. **[D(GPP)]**

1.10.1.2 Patients being discharged into the community on enteral tube feeding and/or their carers should receive an individualised care plan which includes a monitoring plan. Patients should also receive training and information from healthcare professionals on:

- the management of their enteral feeding delivery systems and their enteral feeding regime, 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 where appropriate)
- both routine and emergency telephone numbers to contact a healthcare professional who understands the needs and potential problems of patients on HETF
- the arrangements for the delivery of equipment, ancillaries and feed with appropriate contact details for any homecare company involved. **[D(GPP)]**

1.10.1.3 All patients having parenteral nutrition in the community should be supported by coordinated multidisciplinary care, which includes input from specialist nutrition nurses, dietitians and district and/or homecare company nurses. Close liaison with patients, carers and GPs regarding diagnoses, arrangements and potential problems is essential. **[D(GPP)]**

1.10.1.4 Patients being discharged into the community on parenteral nutrition and/or their carers should receive an individualised care plan

which includes a monitoring plan. Patients should also receive training and information from healthcare professionals on:

- the management of their parenteral nutrition delivery systems and their feeding regime, 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 where appropriate)
- routine and emergency telephone numbers to contact a healthcare professional with the relevant competencies (nutrition nurse, pharmacist)
- the arrangements for the delivery of equipment, ancillaries and feed with appropriate contact details for any homecare company involved. **[D(GPP)]**

1.10.1.5 Healthcare professionals should ensure that patients and/or carers of patients having enteral tube feeding or parenteral nutrition in the community:

- 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 opportunity to discuss diagnosis, treatment options and relevant physical, psychological and social issues
- are given contact details for relevant support groups, charities and voluntary organizations. **[D(GPP)]**

2 Notes on the scope of the guidance

All NICE guidelines are developed in accordance with a scope document that defines what the guideline will and will not cover. The scope of this guideline was established, after a period of consultation, at the start of the guideline development process; it is available from www.nice.org.uk/page.aspx?o=89460

2.1 Groups that will be covered

a) Adults (aged 18 years or older) in hospital and the community, with a disease, disorder or other condition, who are at risk of malnutrition or who have become malnourished.

b) As far as is possible, recommendations for the general adult population will be made and specific recommendations may be made for certain clinical situations, conditions or groups (such as elderly people), although it will not be possible to do this for a large number of situations, conditions or groups.

c) Patients receiving home parenteral nutrition.

2.2 Groups that will not be covered

a) Patients requiring specific long-term therapeutic regimens for the treatment of diseases such as inborn errors of metabolism and chronic renal, liver, or cardiac disease.

b) Pregnant women, since the nutritional demands on the mother and baby require specialist considerations.

c) Patients with eating disorders, because the aims of intervention will differ significantly from

3 Implementation in the NHS

3.1 Resource implications

Local health communities should review their existing practice for nutrition support in adults against this guideline. The review should consider the resources required to implement the recommendations set out in Section 1, the people and processes involved, and the timeline over which full implementation is envisaged. It is in the interests of patients that the implementation is as rapid as possible.

Relevant local clinical guidelines, care pathways and protocols should be reviewed in the light of this guidance and revised accordingly.

Information on the cost impact of this guideline in England is available on the NICE website and includes a template that local communities can use (www.nice.org.uk/CGXXXcosttemplate). **[Note: the costing information will be available when the guideline is published.]**

3.2 General

The Healthcare Commission considers implementation of clinical guidelines to be a developmental standard. The implementation of this guideline will build on the National Service Frameworks for [add] in England and Wales and should form part of the service development plans for each local health community in England and Wales.

3.3 Audit

Suggested audit criteria based on the key priorities for implementation are listed in Appendix D, and can be used to audit practice locally.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, on the basis of its review of the evidence. The Group regards these recommendations as the most important research areas to improve NICE guidance and patient care in the future. The Guideline Development

Group's full set of research recommendations is detailed in the full guideline (see Section 5).

4.1 Research recommendations

What are the benefits of a nutritional screening programme (using a simple tool such as 'MUST') compared to not screening patients in; a) primary care (attending GP clinics), b) care homes, c) hospital inpatients, d) hospital outpatients in terms of determining the number of patients at risk of malnutrition, complications, survival, length of stay, quality of life and cost effectiveness?

Rationale

There is no clear evidence available as to whether screening is really beneficial or how it should be carried out. With the lack of evidence the GDG have considered in detail this problem and have instead carefully developed consensus statements to support recommendations for screening. As a priority it is important that we determine the need for screening and intervention in the community.

Further research is required to identify which components of nutrition monitoring are clinically and cost effective.

Rationale

There is no clear evidence available in to the long and short term benefits of clinical monitoring in terms of prevention of complications and survival. With the lack of evidence the GDG have considered in detail this problem and have instead carefully developed the guidance for monitoring by expert clinical practice and consensus opinion.

What are the benefits of patients (in hospital or the community, including older people) identified as high risk of malnutrition by a screening tool such as MUST being offered either oral sip feeds compared to a) dietary modification and or food fortification, or b) dietary modification and or food fortification and

dietary counselling in terms of determining complications, survival, length of hospital stay, quality of life and cost effectiveness?

Rationale

This is an essential recommendation for research since there is insufficient evidence on the benefits of intervention used for oral nutrition support in particular the benefits of often first line treatment

Further research is required to ascertain whether an educational intervention (for example, three 1 week modular courses, over 6 months) for all healthcare professionals, in particular medical and nursing staff, would impact on patient care (that is, length of hospital stay, frequency of GP visits, complications and quality of life) compared to no formal education?

Rationale

It is known that health care professionals in both the hospital and community setting have a poor knowledge of nutrition. This is partly due to receiving a minimal amount of education in nutrition during the undergraduate training. It is therefore essential to determine whether an organised nutrition support education programme to health care professionals would improve the choice made about nutrition support and the consequent care of patients prescribed nutrition support.

5 Other versions of this guideline

The National Institute for Health and Clinical Excellence commissioned the development of this guidance from the National Collaborating Centre for Acute Care. The Centre established a Guideline Development Group, which reviewed the evidence and developed the recommendations. The members of the Guideline Development Group are listed in Appendix B. Information about the independent Guideline Review Panel is given in Appendix C.

The booklet *The guideline development process: an overview for stakeholders, the public and the NHS* has more information about the Institute's guideline development process. It is available from www.nice.org.uk/guidelinesprocess and copies can also be ordered by telephoning 0870 1555 455 (quote reference N0472).

5.1 Full guideline

The full guideline, Nutrition support in adults: oral supplements, enteral amd parenteral feeding, is published by the National Collaborating Centre for Acute Care; *[if applicable:]* it is available from [website details to be added], the NICE website (www.nice.org.uk/CGXXXfullguideline) and the website of the National Library for Health (www.nlh.nhs.uk). **[Note: these details will apply to the published full guideline.]**

5.2 Quick reference guide

A quick reference guide for health professionals is also available from the NICE website (www.nice.org/CGXXXquickrefguide) or from the NHS Response Line (telephone 0870 1555 455; quote reference number N0XXX). **[Note: these details will apply when the guideline is published.]**

5.3 Information for the public

A version of this guideline for people who are malnourished or at risk of malnutrition and their carers, and for the public, is available from the NICE website (www.nice.org.uk/CGXXXpublicinfo) or from the NHS Response Line (0870 1555 455); quote reference number N0xxx). **[Note: these details will apply when the guideline is published.]**

6 Related NICE guidance

Pressure ulcers: The prevention and treatment of pressure ulcers. *NICE Clinical Guideline* No. XX (2005). Available from www.nice.org/CGXXX

Infection control: Prevention of healthcare-associated infection in primary and community care. *NICE Clinical Guideline* No. 2 (2003). Available from www.nice.org

7 Review date

The process of reviewing the evidence is expected to begin 4 years after the date of issue of this guideline. Reviewing may begin before this if significant evidence that affects the guideline recommendations is identified. The updated guideline will be available within 2 years of the start of the review process.

Appendix A: Grading scheme

The classification of recommendations and the levels of evidence for intervention studies used in this guideline are adapted from the Scottish Intercollegiate Guidelines Network (*SIGN 50: a guideline developers' handbook*), and summarised in the tables below and on page XX).

Classification of recommendations on interventions

Recommendation grade	Evidence
A	• At least one meta-analysis, systematic review, or randomised controlled trial (RCT) that is 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+, is directly applicable to the target population and demonstrates overall consistency of results, **or** • 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
IP	• Recommendation from NICE Interventional Procedures guidance

Levels of evidence for intervention studies

Level of evidence	Type of evidence
1^{++}	• High-quality meta-analyses, systematic reviews of 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

Appendix B: The Guideline Development Group

Guideline Development Group

Dr Mike Stroud (Chair)	Institute of Human Nutrition, Southampton General Hospital; British Association of Parenteral and Enteral Nutrition (BAPEN)
Ms Christine Baldwin	Dietitian, Department of Medicine and Therapeutics, Imperial College, London; British Dietetic Association (BDA)
Ms Vicky Bradnam	Chief Pharmacist, Princess Royal University Hospital, Orpington; Royal Pharmaceutical Society
Ms Andrea Cartwright	Nutrition Nurse Specialist, Basildon University Hospital; National Nurses Nutrition Group (NNNG)
Ms Gwen Coleman	Manager, Food for Thought Manager; patient representative for Alzheimer's Society
Ms Linda Ditchburn	Community Nutrition Nurse Specialist, Fernbank Medical Centre, Birmingham; National Nurses Nutrition Group (NNNG)
Professor Marinos Elia	Professor of Clinical Nutrition & Metabolism, Institute of Human Nutrition, Southampton General Hospital; Royal College of Physicians/Malnutrition Advisory Group
Professor Richard Griffiths	Professor of Medicine (Intensive Care), Head of Intensive Care Research Group, Department of Medicine, University of Liverpool; Intensive Care Society

Ms Judith Jackson	Principal Speech and Language Therapist, Islington PCT based at Whittington Hospital; Royal College of Speech and Language Therapists Advisor in dysphagia.
Professor Paul Little	Professor of Primary Care Research, University of Southampton; Royal College of General Practitioners
Mr Bruce McElroy	Principal Pharmacist, Pharmacy Department, Royal Shrewsbury Hospital; Royal Pharmaceutical Society
Dr Jeremy Nightingale	Consultant Gastroenterologist, Digestive Disease Centre, Leicester Royal Infirmary; British Society of Gastroenterology
Ms Joanna Prickett	Chief Dietitian, North Bristol NHS Trust/Clinical Academic, University of Plymouth; British Dietetic Association
Professor Alan Shenkin	Professor of Clinical Chemistry and Hon Consultant Chemical Pathologist, Department of Clinical Chemistry, University of Liverpool; Intercollegiate Group for Nutrition
Ms Carolyn Wheatley	Chairman, Patients on Intravenous and Nasogastric Nutrition Therapy (PINNT); Patient Representative for PINNT

Appendix C: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring its quality. The Panel includes experts on guideline methodology, health professionals and people with experience of the issues affecting patients and carers. The members of the Guideline Review Panel were as follows.

[NICE to add]

Appendix D: Technical detail on the criteria for audit

Criterion	Exception	Definition of terms
There should be documentation that healthcare professionals in hospital and community settings have received training in nutrition support on: 1) the importance of adequate nutrition (for patients) 2) the indications for nutrition support and its delivery (routes, mode of access, prescription) 3) when and where to seek expert advice on nutrition support	Healthcare professionals who are recognised experts in the field of nutrition support as recognised within the local clinical governance structure.	This should take place at the start of their employment and thereafter biannually.
To determine risk of malnutrition: hospital inpatients are screened on admission and this is repeated weekly hospital outpatients are screened at their first clinic appointment and at subsequent appointments as clinically indicated. A clear process for documenting the outcomes of screening (that is, 'nutritional risk score') and the subsequent actions (that is, 'nutritional care plan') taken if the patient is recognised as malnourished or at risk of malnutrition should be planned.	Hospital departments considered to have patients at low risk of under-nutrition. They will have specifically opted out of screening having followed an explicit process to do so via the local clinical governance structure and involving experts in nutrition support. Patients having palliative care.	A simple screening tool should be used that includes BMI (or other estimate, for example midarm circumference when weight cannot be measured), percentage weight loss, and considers the time over which nutrient intake has been reduced (for example, MUST).
To determine risk of malnutrition: Residents or patients in care homes	Subsequent screening of residents or patients	A simple screening tool should be used

Criterion	Exception	Definition of terms
should be screened for the presence or risk of malnutrition on admission and whenever there is clinical concern (for example, patients with 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). A clear process for documenting the outcomes of screening (that is, 'nutritional risk score') and the subsequent actions (that is, 'nutritional care plan') taken if the patient is recognised as malnourished or at risk of malnutrition should be planned.	in care homes where there is no clinical concern about risk of under nutrition. Residents or patients having palliative care.	that includes BMI (or other estimate, for example midarm circumference when weight cannot be measured), percentage weight loss, and considers the time over which nutrient intake has been reduced (for example, MUST).
Documentation in patient records that options of oral interventions to improve intake have been considered in patients who can eat safely but who are either: 1) malnourished (BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months) or; 2) at risk of malnutrition (eaten very little for > 5 days and/or unlikely to eat more than very little amounts for the next 5 days). (See recommendation 0.1)	Patients who are eating well and are not at nutritional risk, for example BMI > 20 kg/m^2. Patients who have a BMI of <18.5 kg/m^2, are eating well and have no history of weight loss. Patients who are unable to swallow safely. Patients who present with indications for enteral and parenteral	The documentation should include information about which types of oral intervention(s) were used and a record of any relevant complications.

Criterion	Exception	Definition of terms
	nutrition	
Documentation in patient records that enteral tube feeding has been considered for a patient who has a functional, tube accessible gastrointestinal tract and who despite the use of oral interventions if appropriate, still has an inadequate or unsafe oral intake and: is malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months or BMI < 18.5–20 kg/m^2 and unintentional weight loss > 5% within the previous 3–6 months) and/or 2) is at risk of malnutrition (eaten very little for > 5 days and or unlikely to eat more than very little amounts for the next 5 days). (see recommendation 0.1)	Patients who are eating well and are not at nutritional risk, for example BMI >20 kg/m^2. Patients who have a BMI of <18.5 kg/m^2, are eating well and have no history of weight loss. Patients who are receiving and responding to the benefits of oral nutrition support.	The documentation should include information about which type of enteral and if appropriate oral intervention(s) were used and a record of relevant complications.
Documentation in patient records that parenteral nutrition has been considered for patients who have a non-functional and/or inaccessible gastrointestinal tract such that they cannot be adequately fed by other means and are:	Patients who have a BMI of <18.5 kg/m^2, are eating well and have no history of weight loss Patients who are receiving and responding to the	Important outcomes should include documentation about which type of parenteral, enteral and if appropriate oral intervention(s) were used and a

Criterion	Exception	Definition of terms
malnourished (BMI < 18.5 kg/m^2 and unintentional weight loss > 10% within the previous 3–6 months) or at risk of malnutrition (eaten very little for > 5 days and/or unlikely to eat more than very little amounts for the next 5 days). (see recommendation 0.1)	benefits of oral and or enteral nutrition support.	record of complications, for example catheter related sepsis.
Documentation in patients records that patients who presents with any of the obvious or less obvious indicators for dysphagia (**Error! Reference source not found.**) are referred to healthcare professionals with specialist training in the diagnosis, assessment and management of swallowing disorders, for example speech and language therapists, gastroenterologists, radiologists, neurologists, specialist nurses.	Patients who do not present with any of the obvious or less obvious indicators for dysphagia.	Important outcomes should include documentation what type (if any) of nutrition support did the patient receive.
Prescription of nutrition support – documentation should include: 1) type of professional who develop prescribed the nutrition support 2) estimated requirements of that patient 3) special considerations, for example	Patients not prescribed nutrition support	Consider the PEN Group's Pocket Guide to Clinical Nutrition. (The Parenteral and Enteral Nutrition Group of the British Dietetic Association

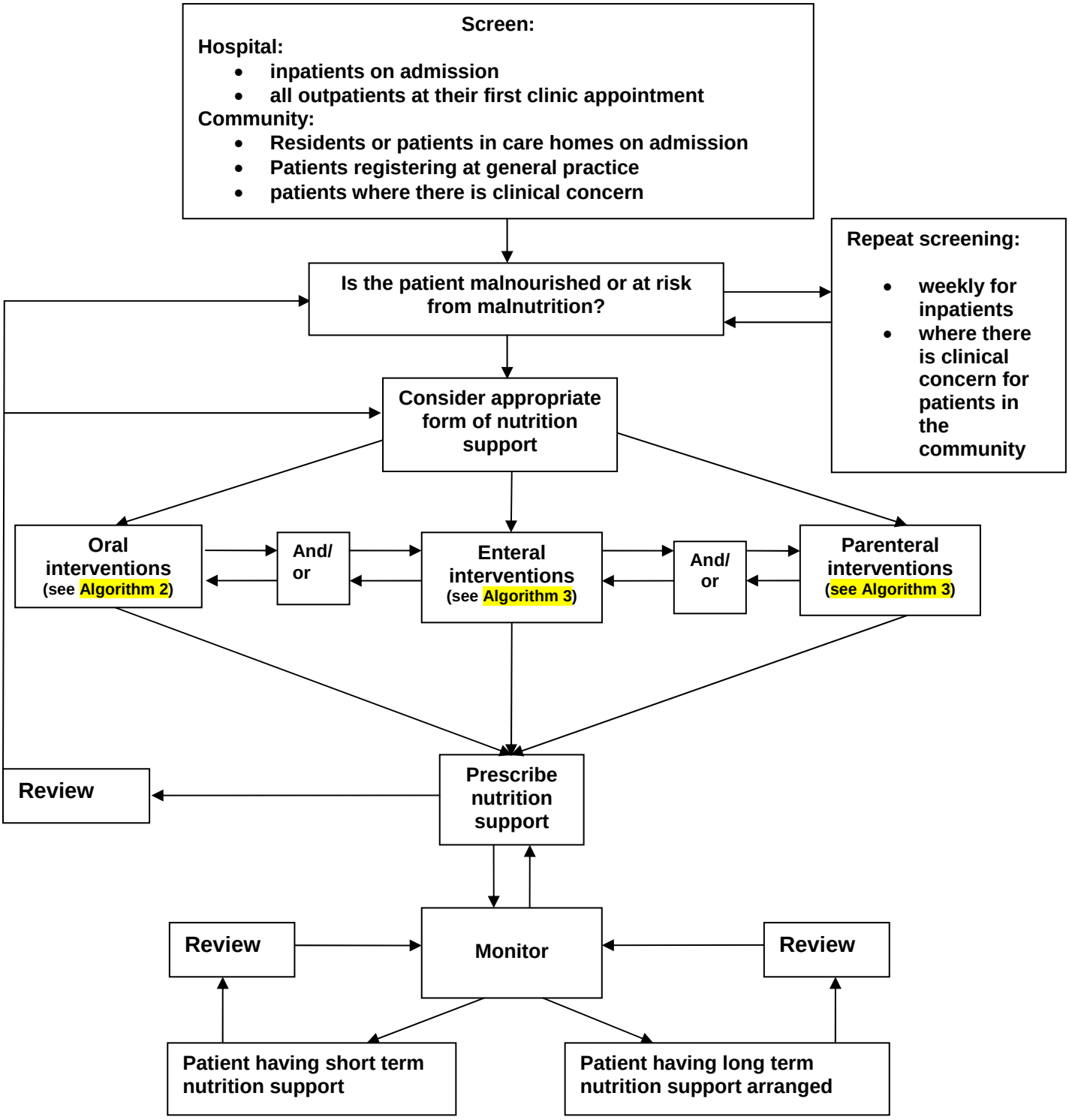
Criterion	Exception	Definition of terms
risk of refeeding 4) outcome – complications that may arise following initiation of nutrition support, for example on set of refeeding problems, metabolic complications, encurring nutritional deficiencies, catheter related sepsis.		(PEN Group) 2004).
There should be clear documentation that when patients are started on nutrition support consideration has been given to determine if they would be at risk of refeeding syndrome by having considered the criteria in Table 1.		Review the criteria for determining patients at high risk of refeeding syndrome are listed in Table 1.
There should be clear documentation that healthcare professionals involved in the provision of nutrition support (hospital and community) have: 1) ensured that until patients are stabilised on nutrition support there is a review of the indications for, route of and goals of nutrition support daily or twice weekly 2) for patients established on nutrition support that a review of the indications for, route of and goals of nutrition support is done every 3–6 months until nutrition support is no longer required.	Patients not receiving nutrition support.	Important outcomes should include documentation about which type of parenteral, enteral and if appropriate oral intervention(s) were used and a record of complications, for example catheter related sepsis.

Appendix E: The algorithms

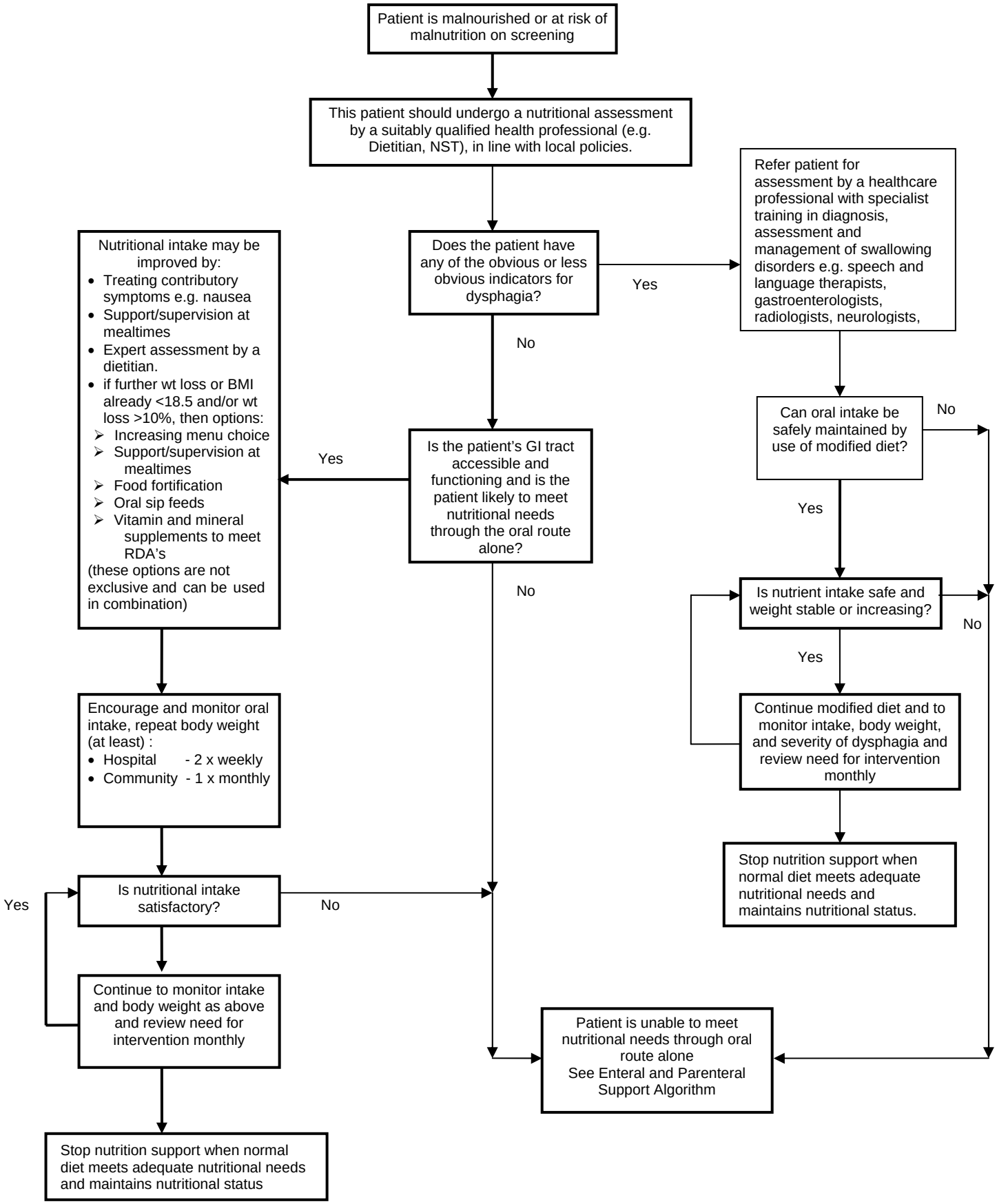
Patient Pathway Algorithm

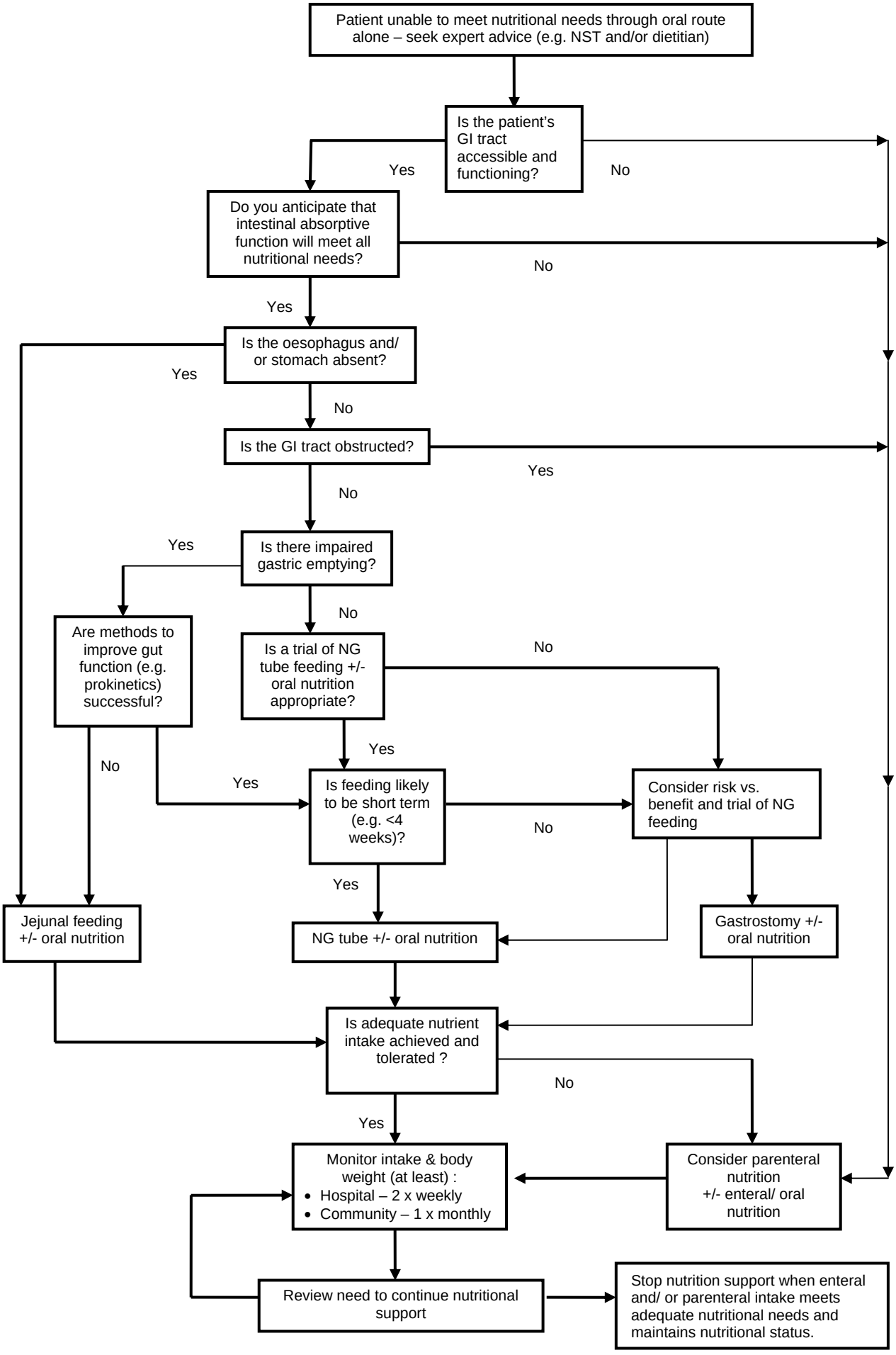
At all stages of care:

- **Consider cultural, ethical and legal issues of providing nutrition support**
- **Provide patients and/ or carers with information about their treatment**
- **Ensure that there is a care pathway with clear treatment goals**



Oral, Enteral and Parenteral Algorithms




Patient unable to meet nutritional needs through oral route alone – seek expert advice (e.g. NST and/or dietitian)
Is the patient's GI tract accessible and functioning?
Yes
No
Do you anticipate that intestinal absorptive function will meet all nutritional needs?
No
Yes
Is the oesophagus and/ or stomach absent?
Yes
No
Is the GI tract obstructed?
Yes
No
Is there impaired gastric emptying?
Yes
No
Are methods to improve gut function (e.g. prokinetics) successful?
Is a trial of NG tube feeding +/- oral nutrition appropriate?
No
No
Yes
Yes
Is feeding likely to be short term (e.g. <4 weeks)?
Consider risk vs. benefit and trial of NG feeding
No
Yes
Jejunal feeding +/- oral nutrition
NG tube +/- oral nutrition
Gastrostomy +/- oral nutrition
Is adequate nutrient intake achieved and tolerated ?
No
Yes
Monitor intake & body weight (at least) :
• Hospital – 2 x weekly
• Community – 1 x monthly
Consider parenteral nutrition +/- enteral/ oral nutrition
Review need to continue nutritional support
Stop nutrition support when enteral and/ or parenteral intake meets adequate nutritional needs and maintains nutritional status.