



HAUTE AUTORITÉ DE SANTÉ

CLINICAL PRACTICE GUIDELINES

Nutritional support strategy for protein-energy malnutrition in the elderly

GUIDELINES

April 2007

The full report (in French) can be downloaded from www.has-sante.fr

Haute Autorité de Santé

Communications Department

2 avenue du Stade de France - F 93218 Saint-Denis La Plaine CEDEX

Phone:+33 (0)1 55 93 70 00 - Fax:+33 (0)1 55 93 74 00

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1. Introduction

1.1 Subject and aims of the guidelines

► Subject of the guidelines

These guidelines produced at the request of the General Directorate of Health within the scope of the French Nutrition and Health Programme (PNNS) concern the management of malnutrition in elderly persons living at home, in institutional care, or in hospital.

They form part of a recent series of studies published by ANAES¹ or HAS, namely, the clinical practice guidelines on the “Diagnostic assessment of protein-energy malnutrition in hospitalized adults” (ANAES, September 2003) and the work conducted by the Committee for the Assessment of Devices and Health Technologies (CEPP) on “Reimbursement procedures for dietary foods for special medical purposes for nutritional supplementation and home enteral nutrition” (HAS, September 2006).

► Aim of the guidelines

The aim of these guidelines is to develop a tool for identifying and managing elderly subjects who are malnourished or at risk of malnutrition. They address the following questions:

- Who are the elderly persons at risk of malnutrition and/or what are the risk factors ?
- What tools may be used to detect and diagnose malnutrition in the elderly? How is severe malnutrition diagnosed ?
- What nutritional support strategy should be recommended ?
- What practical measures may be applied for nutritional support ?
- In certain special situations, what specific measures may be taken to provide nutritional support ?
- How should coordination be ensured between the different persons involved (general practitioner, nurse, dietician, geriatrician, family and close relatives...) and the different intervention sites (home, hospital-at-home care, hospital, institutional care, etc) ?

1.2 Patients concerned

In agreement with recent institutional reports, an age threshold of 70 years will be used to define the elderly population in these guidelines.

¹ ANAES: French National Agency for Accreditation and Evaluation in Healthcare, merged into HAS in 2005.

1.3 Health professionals concerned

These guidelines are aimed at all health professionals managing malnourished elderly subjects or those at risk of malnutrition and more particularly general practitioners, geriatricians, dieticians, nurses, nutritionists and gastroenterologists.

1.4 Assessment method

These guidelines were drafted according to the clinical practice guidelines method described in the guide “Clinical practice guidelines - methodological basis for their development in France” (1999)². This method is based on a systematic review of the literature and on the expert opinion of a multidisciplinary working group.

1.5 Grading of the guidelines

The proposed guidelines were graded as indicated in Appendix 1. In the absence of scientific evidence, the guidelines are based on professional agreement among members of the working group and peer reviewers. No evidence does not signify that the guidelines are not relevant but, whenever possible, should encourage the carrying out of further studies.

2. Protein-energy malnutrition : definition, epidemiology

Protein-energy malnutrition is caused by an imbalance between intake and the body's requirements. This imbalance causes tissue loss, in particular of muscle tissue, with harmful functional consequences.

In the elderly, malnutrition causes or worsens a state of frailty and/or dependency, and contributes to the development of morbidities. It is also associated with a worsening of the prognosis of underlying diseases and increases the risk of death.

The prevalence of protein-energy malnutrition increases with age. It is 4 to 10 % in elderly persons living at home, 15 to 38 % in those in institutional care, and 30 to 70 % in hospitalized elderly patients.

Isolated protein deficiencies may be observed even in elderly persons apparently in good health.

² Available in French on the HAS website www.has-sante.fr.

3. What are the risk factors for malnutrition in elderly persons?

Risk factors for malnutrition in the elderly include factors unrelated to the age and those more specific to elderly people.

3.1 Risk factors unrelated to age

Risk factors for malnutrition are :

- cancer
- chronic and severe organ failure (cardiac, respiratory, renal or hepatic)
- gastrointestinal diseases causing maldigestion and/or malabsorption
- chronic alcoholism
- chronic infectious and/or inflammatory diseases
- all factors likely to cause a reduction in food intake, an increase in energy requirements, malabsorption, or all these three situations together.

3.2 Risk factors more specific to the elderly

Certain factors may promote or be associated with malnutrition. They may be classified as shown in Table 1. Each of these factors must alert the health professional and close relatives. This is especially the case if several factors are combined.

Moreover, many diseases may be accompanied by malnutrition because of anorexia. Anorexia is a frequent symptom in the elderly and it is essential to systematically seek a cause.

4. What tools may be used to screen for and diagnose malnutrition in the elderly? How is severe malnutrition diagnosed?

4.1 Screening for malnutrition

Screening for malnutrition is recommended in all elderly subjects and must be carried out at least once a year in general practice, on admission and then once monthly in institutions, and during each hospital stay.

Elderly persons at risk of malnutrition should be screened more frequently, according to the subject's clinical status and the degree of risk.

Table 1. Malnutrition risk factors

Factor	Possible causes
Psychological, social, and environmental	Social isolation Grieving Financial difficulties Ill-treatment Hospitalisation Change in lifestyle: Admission to an institution
Oral and dental disorders	Mastication disorders Poor dental status Poorly fitting dentures Dryness of the mouth Oropharyngeal candidiasis Dysgueusia
Swallowing disorders	ENT disease Vascular neurodegenerative disease
Psychiatric disorders	Depressive syndromes Behavioural disorders
Dementia	Alzheimer's disease Other forms of dementia
Other neurological disorders	Confusional syndrome Consciousness disorders Parkinsonism
Long-term drug treatment	Polymedication Medication causing dryness of the mouth, dysgueusia, gastrointestinal disorders, anorexia, drowsiness etc. Long-term corticosteroid therapy
Any acute disorder or decompensation of a chronic disease	Pain Infectious disease Fracture causing a disability Surgical procedure Severe constipation Pressure sores
Dependency for daily activities	Eating dependency Mobility dependency
Restrictive diets	Salt-free Slimming Diabetic Cholesterol-lowering Long-term residue-free diets

Screening for malnutrition is based on:

- a search for risk factors of malnutrition
- estimation of appetite and/or food intake
- measurement of body weight
- evaluation of weight loss compared to a previous record
- calculation of body mass index [BMI = Weight/Height², where the weight is in kg and the height in m].

Screening may use a questionnaire including at least a search for risk factors and body weight changes, such as the Mini Nutritional Assessment (MNA) (Appendix 2) (grade C).

Elderly persons should be weighed:

- in general practice: at each visit
- in an institution: on admission, then at least once monthly
- in the hospital on admission, then at least once weekly during a short stay, every 15 days for rehabilitation care, and once monthly during long-term care.

If possible, patients should be weighed in their underwear using a method appropriate to their mobility.

Scales complying with NF (French standards) or ISO standards should be used in the doctor's surgery. In the person's home, the same scales should always be used to monitor body weight.

It is important to note the body weight in the medical record - whether at home, in an institution or in hospital - in order to plot a weight curve. Any weight loss is a warning sign of malnutrition.

To calculate BMI, height should be measured whenever possible with a measuring arm, with the patient standing upright. If the patient cannot stand upright or has a spine curvature problem (dorsal kyphosis, etc), use Chumlea's³ formulae to estimate height from the heel-knee height or use the self-reported height.

4.2 Diagnosis of malnutrition

The diagnosis of malnutrition is based on the presence of one or more of the following criteria⁴:

³ Chumlea's formulae:

- For women: $H \text{ (cm)} = 84.88 - 0.24 \times \text{age (years)} + 1.83 \times \text{knee height (cm)}$
- For men: $H \text{ (cm)} = 64.19 - 0.04 \times \text{age (years)} + 2.03 \times \text{knee height (cm)}$

(Knee height is measured with the patient lying on their back, knees bent at 90°, using a height caliper placed under the foot with the mobile blade placed above the knee, at the condyles).

⁴ For the sake of coherence, the thresholds are those of HAS' assessment of home nutrition products and related services (published in French in September 2006).

► **Weight loss \geq 5% in 1 month or \geq 10% in 6 months**

Ideally the reference weight is obtained from an earlier medical record. If it is not available, the usual self-reported body weight may be used. In the case of acute illness, the body weight must be that measured before the onset of the disorder.

Factors that may influence the interpretation of the result, such as dehydration, oedema, or fluid effusions, should be taken into account.

► **Body mass index $<$ 21**

A BMI $<$ 21 is one of the criteria of malnutrition in the elderly. However, a BMI \geq 21 does not exclude the diagnosis of malnutrition (for example in the case of obesity with weight loss⁵).

► **Serum albumin concentrations $<$ 35 g/l**

Hypoalbuminaemia is not specific to malnutrition and may be observed in many disorders independent of nutritional status, in particular during inflammatory processes. The serum albumin assay result should therefore be interpreted after taking into account the inflammatory status evaluated by assay of C-reactive protein.

Serum albumin concentration is a major prognostic factor of morbidity and mortality. Moreover, it may be used to distinguish two forms of malnutrition:

- Malnutrition due to an isolated deficiency in food intake, in which serum albumin may be normal;
- Malnutrition associated with inflammation and hypercatabolism during which there is a rapid fall in serum albumin levels.

► **Global MNA score $<$ 17**

See the Global MNA test in Appendix 2.

4.3 Diagnosis of severe malnutrition

This is based on one or more of the following criteria:

- weight loss: \geq 10% in 1 month or \geq 15% in 6 months
- BMI $<$ 18
- serum albumin $<$ 30 g/l.

It is important to distinguish severe forms of malnutrition. These are associated with a considerable increase in morbidity and mortality, and therefore require rapid nutritional management.

⁵ Sarcopenic obesity: obesity with weight loss due to loss of muscle mass.

5. Nutritional support strategy

The nutritional assessment should include a simple dietary interview of the elderly person or of his/her relatives, to establish whether the person has a varied diet, rich in fruit and vegetables, and if he/she eats protein-containing foods (meats, fish, eggs) at least twice daily and three dairy products per day. It is also recommended to evaluate the daily fluid intake.

In malnourished elderly subjects or when there is a risk of malnutrition, not only should nutritional management be provided, but identified risk factors should be corrected, by proposing for example:

- technical or human assistance during meals
- oral and dental care
- a reassessment of the appropriateness of medication and diets
- management of any underlying diseases.

Nutritional support is all the more effective when it is implemented early.

5.1 Objective of nutritional support in malnourished elderly subjects

The objective of nutritional support in malnourished elderly subjects is to achieve an energy intake of from 30 to 40 kcal/kg/day and a protein intake of from 1.2 to 1.5 g of protein/kg/day. The nutritional requirements will vary among subjects and according to the disease background.

5.2 Methods of nutritional support

The different methods of nutritional support are:

- oral nutritional support: this comprises nutritional guidance, assistance during eating, provision of fortified food, and oral nutritional supplements some of which are reimbursed (see LPPR⁶)
- enteral nutritional support
- parenteral nutritional support, only when the gastrointestinal tract is not functional.

5.3 Choice of methods of nutritional support

The nutritional support strategy is based on the patient's nutritional status and on the spontaneous food energy and protein intake (Table 2). It also takes into account the nature and severity of any underlying disease(s) and associated disabilities, as well as their foreseeable outcome (swallowing

⁶ LPPR: List of Reimbursed Products and Services ([Produits pour nutrition à domicile et prestations associées](#))

disorders for example). Support must also integrate the opinion of patients and their close relatives, as well as ethical considerations.

Apart from situations contra-indicating oral feeding, nutritional support should, as a priority, be initiated by providing dietary advice and/or fortified foods (grade C), if possible in collaboration with a dietician.

- Oral nutritional supplementation (ONS) may be given if these supportive measures are ineffective or from the outset in patients with severe malnutrition (grade C).
- Enteral nutrition may be attempted if it impossible to achieve adequate oral nutritional support.
- Parenteral nutrition is restricted to the three following situations:
 - (i) severe anatomical or functional malabsorption syndromes
 - (ii) acute or chronic bowel obstruction
 - (iii) failure of well-conducted enteral nutrition (poor tolerability).
 It should be implemented in specialized departments within the scope of a coherent treatment plan.

Table 2. Nutritional support strategy in the elderly

		Nutritional status		
		Normal	Malnutrition	Severe malnutrition
Spontaneous dietary intake	Normal	Monitoring	Dietary advice Fortified diet Reassessed ¹ at 1 month	Dietary advice Fortified diet and ONS Reassessed ¹ at 15 days
	Reduced but more than half usual intake	Dietary advice Fortified diet Reassessed ¹ at 1 month	Dietary advice Fortified diet Reassessed ¹ at 15 days and if failure: ONS	Dietary advice Fortified diet and ONS Reassessed ¹ at 1 week and if failure: EN
	Very reduced and less than half normal intake	Dietary advice Fortified diet Reassessed ¹ at 1 week and if failure: ONS	Dietary advice Fortified diet and ONS Reassessed ¹ at 1 week and if failure: EN	Dietary advice Fortified diet and EN from outset Reassessed ¹ at 1 week

ONS: oral nutritional supplements; EN: enteral nutrition

¹ Reassessment comprises:

- Body weight and nutritional status
- Tolerability and adherence to treatment
- Clinical course of underlying disease
- Estimation of spontaneous food intake

5.4 Role of adjuvant medication

Ornithine alpha-ketoglutarate reduces muscle protein catabolism, inhibits the reduction in muscular glutamine, and improves nitrogen balance. Its prescription must be accompanied by a sufficient protein-energy intake

(isolated use is not recommended). It should not be prescribed for more than 6 weeks.

Megestrol acetate is a progestogen used in the treatment of anorexia in cancer patients. There are insufficient data in the literature to support its use in malnutrition of elderly subjects.

Growth hormone improves lean body weight, but its use is restricted by its side effects. It is not recommended for the treatment of malnutrition in the elderly.

5.5 Prescription of micronutrients

The elderly population represents a population at risk of deficiency in various micronutrients (mainly group B vitamins, vitamin C, vitamin D, selenium and calcium, etc).

The prevalence of these deficiencies is higher in hospitalized or institutionalized elderly patients than in those living at home. However, apart from administration of calcium and vitamin D, the clinical benefit of administration of single or combined vitamins, trace elements and minerals on the health of elderly people has not been demonstrated.

Elderly subjects should not receive micronutrient supplements above the recommended dietary intake as a matter of routine but only to correct deficiencies.

5.6 Monitoring of malnourished elderly subjects, periodicity of nutritional assessment and tools

Follow-up is mainly based on the measurement of body weight and estimation of food intake.

► Body weight

Body weight should be measured once weekly.

► Food intake

Monitoring of food intake is an essential component of follow-up of malnourished patients in order to adjust nutritional support. A semi-quantitative method assessing food intake may be used. On the other hand, ingested food may be calculated precisely, preferably over three consecutive days or at least over 24 hours.

The periodicity of monitoring varies according to the clinical setting, the severity of the malnutrition, and the change in body weight, but it should take place at least during each reassessment mentioned in [Table 2](#).

► **Albumin**

Assay of serum albumin is recommended to evaluate the efficacy of renutrition. However, it is not necessary to repeat this assay more than once a month outside specific situations.

► **Transthyretin or prealbumin**

Transthyretin is an additional tool for the initial evaluation of renutrition efficacy as it has a short half-life.

5.7 Limits of terminal nutritional support

The primary objectives of nutritional support during the last weeks of life of an elderly person are pleasure and comfort. The institution of renutrition by the parenteral or enteral routes is not recommended, especially as intubation may be a source of discomfort. This decision must be explained to the nursing team and the elderly person's close relatives.

To preserve the pleasure of oral feeding, a good oral health status should be maintained. Regular mouth hygiene is needed. All symptoms that may reduce the desire to eat or the pleasure of eating such as pain, nausea, glossitis and dryness of the mouth should be relieved.

6 Practical methods of nutritional support

6.1 Oral nutritional support

Studies in malnourished elderly inpatients have shown an improvement in body weight and survival and a reduction in the incidence of complications after oral nutritional support (grade A).

► **Dietary advice**

Several measures are recommended to increase food intake:

- follow French National Nutrition Health Programme (PNNS)⁷ advice for the elderly:
 - ▶ meat, fish or eggs: 2 servings a day
 - ▶ milk and dairy products: 3 to 4 servings a day
 - ▶ bread, other cereal foods, potatoes or pulses at each meal
 - ▶ at least 5 portions of fruit and vegetables every day
 - ▶ 1 to 1.5 litres of water a day (or other drinks: herbal tea, fruit juice, etc) and drinking before feeling thirsty

⁷ [PNNS text 2001-2005](#)

- increase eating frequency during the day by splitting (elderly persons should eat three meals a day) and by proposing snacks between meals;
- do not allow the patient to go without food for too long during the night (>12 hours) by delaying dinner and advancing breakfast and/or by proposing a snack;
- provide mainly high-energy and/or high protein foods;
- design menus to suit patients' preferences and modify food texture according to chewing and swallowing ability;
- organize technical and/or human assistance for feeding according to the person's disabilities;
- provide meals in pleasant surroundings (dining room and companions).

► **Fortified foods**

Fortified foods are used to increase the energy and protein intake of a meal without increasing its volume. They are obtained by enriching traditional food with products such as milk powder, whole milk concentrate, grated cheese, eggs, fresh cream, melted butter, oil, or industrial protein powders. Food fortification methods are illustrated in Appendix 3.

Protein-fortified pasta or semolina may also be used. For persons requiring a smooth texture, complete high-protein meals also exist as powder mixes or "ready-to-use" forms. Some of these products are included on the LPPR⁸ list of reimbursed products.

► **Oral nutritional supplements (ONS)**

High-energy and/or high-protein ONS also exist with different tastes, with or without lactose, and with a variety of textures (liquid, cream, etc). Several types of product are available including dairy desserts, soups, complete meals, fruit juice, etc.

Preference should be given to high-energy (≥ 1.5 kcal/ml or g) and/or high-protein products (proteins ≥ 7.0 g/100 ml or 100 g or proteins ≥ 20 % of total energy intake).

ONS are prescribed as follows:

- ONS may be eaten during snacks or during meals. When they are provided during meals, they must be eaten in addition to meals and not instead of meals. When they are provided during a snack, they should be given about 2 hours before or after a meal in order not to spoil appetite during meals.
- The ONS prescription should supply an additional food intake of 400 kcal/day and/or 30 g protein/day; this generally requires 2 units per day.

⁸ LPPR: List of Reimbursed Products and Services: available for download at the HAS website: http://www.has-sante.fr/portail/display.jsp?id=c_479172

- Patients should be told that ONS are a treatment for malnutrition to encourage consumption.
- The taste of ONS should be suited to patient preferences (salted, sweet, milky or not, flavours). The flavour of a product with a neutral or vanilla taste may be changed by adding flavours (fruit syrup, caramel, coffee, powdered chocolate, etc). Consumption may be improved by varying products and flavours and respecting patient preferences.
- ONS should be adapted according to any disabilities (difficulties in swallowing or in gripping objects, etc). The texture of drinks may be modified with a thickening powder (not included on the list of reimbursed products in France).
- ONS intake may be improved by serving them at the correct temperature. Sweet products are often preferred cold. ONS to be served hot may often be heated up in a water bath or microwave oven. Once opened, the supplement may be kept for 2 hours at room temperature and for up to 24 hours in the refrigerator.
- A regular check should be performed to ensure that the prescribed ONS are actually eaten.

At home, the first prescription is made for a maximum period of one month. After medical reassessment, subsequent prescriptions may be made for a maximum period of 3 months. Medical reassessment should be based on the following:

- body weight and nutritional status
- clinical course of underlying disease(s)
- estimation of spontaneous food intake
- tolerability of ONS
- compliance with the ONS prescription.

6.2 Prescription of enteral nutrition

Enteral nutrition is indicated

- if oral nutritional support fails:
- for first-line treatment of:
 - severe swallowing disorders
 - severe malnutrition with a very low food intake.

When enteral nutrition is prescribed, the consent of patients and their close relatives should be obtained after informing them about its procedures and expected benefits and the organization that it requires.

Enteral nutrition should be started during a hospital stay of at least a few days in order to perform intubation, evaluate tolerability, train patients when possible, and systematically train their close relatives.

In the absence of complications, enteral nutrition may be continued at home. If the patients or their close relatives cannot manage enteral nutrition, it is

initiated and followed up by a specialized service provider possibly with the assistance of a nurse or a hospital-at-home unit.

Before the patient returns home, the prescribing hospital department should contact the primary care doctor and carers in order to discuss the proposed procedure, its feasibility and also to specify the technical and follow-up procedures. This contact between the hospital and primary care doctor should be followed by the provision of written instructions and by contact between the service provider and the primary care doctor.

The first prescription for enteral nutrition is made by a public or private hospital doctor who specifies the level of nutritional support required and informs the patient and close relatives about its implementation, purpose and possible complications. The prescription should be made in two stages:

1. a prescription for 14 days which includes the setting-up service
2. a renewable 3-month follow-up prescription.

The first follow-up prescription is made by the hospital department writing the initial prescription, for a period of 3 months. This hospital appointment should be used to assess nutritional requirements, tolerability, and implementation. At the end of these first 3 months, the department makes a new assessment.

Subsequent follow-up prescriptions (renewals) are made every 3 months during the first year. They may be written out by the primary care doctor. Once the patient returns home, the primary care doctor should take part in the monitoring of enteral nutrition.

After the first year, renewals are made every year during the annual reassessment performed either by the hospital department issuing the first prescription or by another department in the same healthcare institution or by another healthcare institution.

Reassessments at each prescription renewal should include:

- body weight and nutritional status
- clinical course of underlying disease
- tolerability of enteral nutrition
- compliance with enteral nutrition
- evaluation of oral food intake, where applicable.

7. Special situations

7.1 Alzheimer's disease

Weight loss frequently occurs during Alzheimer's disease. The weight loss may be:

- due to the Alzheimer's disease itself. It is associated with cognitive impairment and loss of autonomy. Its causes include a reduction in food

intake (loss of appetite, food behaviour disorders, loss of autonomy, etc) and/or increased energy expenditure (wandering, constant movement, etc.);

- secondary to intercurrent pathological events.

Oral nutritional support should be proposed to all elderly persons with Alzheimer's disease presenting weight loss. It should be adjusted according to possible food behaviour disorders, motor disorders or swallowing disorders.

- ***In malnourished elderly persons with severe Alzheimer's disease***, enteral nutrition should not be proposed because of the high risk of life-threatening complications and as it has no proven benefit. If it is considered, the decision must be made after a multidisciplinary meeting (doctors, nurses, family and professional carers, close family members, etc). The decision must take the patient's somatic characteristics and ethical aspects into account.
- ***In elderly patients suffering from mild or moderate Alzheimer's disease***, oral nutritional support (ONS) should be proposed if sudden weight loss occurs due to acute disease or surgery or a deterioration in the social environment (loss of carer, change in home healthcare, etc.). In ONS fails, enteral nutrition may be proposed for a limited period to get over the acute phase.

The support and management of a patient with Alzheimer's disease imposes a heavy burden on close relatives (primary carer), especially if the disease is at an advanced stage or if the carer is alone. This situation may be a risk factor for exhaustion and malnutrition of the carer. The carer's nutritional status should therefore also be monitored.

7.2 Pressure sores

Nutritional support of the elderly at risk of pressure sores helps reduce the incidence of these lesions. Nutritional support should therefore be proposed to elderly persons at risk of pressure sores (grade B).

In the elderly at risk of pressure sores or with established pressure sores, the nutritional objectives are the same as those recommended for malnourished elderly persons, i.e. 30 to 40 kcal/kg/day and from 1.2 to 1.5 g protein /kg/day.

If these objectives cannot be achieved by spontaneous eating, dietary advice and food fortification should be proposed. If these measures fail, oral nutritional supplements (ONS) should be prescribed.

Certain ONS (fortified with micronutrients or nutraceuticals) and nutritional adjuvants are claimed to improve the healing of sores. In the absence of studies showing their superiority over standard ONS, their use is not recommended.

If oral nutritional support fails, enteral nutrition should be proposed, provided that the expected benefit is thought to outweigh the risks of the technique. The patient's somatic characteristics and ethical considerations should be taken into account.

Micronutrient supplementation above recommended dietary intakes (RDI) is not recommended except to correct established deficiencies.

7.3 Swallowing disorders

Swallowing disorders may cause respiratory complications, malnutrition and dehydration. After an etiological workup, management should follow a multidisciplinary approach including medical and surgical management of the causal disease, dietary advice and rehabilitation.

In as far as possible, if the risk of aspiration is considered to be low, oral feeding should be continued even with tiny amounts. However, there is no standard diet because of the diversity and complexity of the mechanisms involved in swallowing disorders. Mixed food should not be offered as a matter of routine as it is not very appetizing.

Enteral nutrition should be provided if changes in texture (pureed or ground food, thickening of liquids, etc) are insufficient to avoid respiratory complications and/or cover nutritional requirements.

If swallowing disorders persist beyond 2 weeks, enteral nutrition should be administered by gastrostomy rather than a nasogastric tube. The patient's somatic characteristics and ethical considerations should be taken into account.

7.4 Convalescence after an acute disease or surgery

Weight loss often occurs after an acute medical disorder or surgery. This weight loss may be related to an inflammatory syndrome, stress of surgery, periods of fasting, medication, pain, a confusional syndrome, etc. Elderly subjects suffer from a dysregulation of appetite which restricts their capacity to recover their previous weight spontaneously.

Weight loss should therefore be assessed after surgery or an acute medical disorder, especially when a patient returns home after discharge from hospital. Nutritional support should be instituted in the event of a fall in body weight.

In the case of femoral neck fracture, when a worsening in nutritional status is common, oral nutritional supplements should be prescribed temporarily as this has been shown to improve prognosis (grade B).

7.5 Depression

Depression is characterized by mood changes causing many symptoms including food behaviour disorders such as anorexia. Drugs used to treat depression may also modify food intake. Patients with depression are therefore particularly at risk of malnutrition.

Patients with depression should be regularly weighed during visits and should be questioned to detect any reduction in food intake. Nutritional support should be instituted in the case of malnutrition or a reduction in food intake.

8. Coordination among health professionals and among intervention sites

Several persons may be involved in the nutritional management of the elderly (primary care doctors, nurses, dietitians, geriatricians, close relatives ...), and patients may receive care in various places (home, hospital-at-home, hospital, nursing home, etc...).

Doctors (primary care doctor, EHPAD⁹ coordinating doctor, hospital doctor, etc.) are responsible for screening for malnutrition and the nutritional support of the elderly. This screening must be carried out in collaboration with other health professionals and family members.

8.1 At home

In addition to assistance from family members, various forms of assistance may be provided to improve nutritional management

- home help/or carer to do the shopping, prepare meals, help patients eat their food, etc;
- "meals-on-wheels" organized by certain town councils, associations or commercial companies;
- access to restaurants at senior centres.

To obtain information and set up assistance, the elderly, their family and health professionals may call upon several services in addition to the primary care doctor:

- healthcare networks including networks for the elderly;
- local social welfare centres (CCAS) which deal with requests for assistance and also provide information;
- local information and coordination centres (CLIC) which provide community help, information, advice, and guidance for the elderly and

⁹ Residential care institution for dependent adults

their relatives. They provide all the necessary information to help the elderly in their daily life;

- social services.

Assistance is funded by:

- the personal autonomy allowance (APA), allocated by the departments of the General Council, which may be used to finance home-help or meals-on-wheels for example;
- social assistance (solidarity) at county level (*département*) which helps finance residential care for the underprivileged and homeless;
- pension funds and certain mutual insurance companies.

Professional carers and home helps should be given simple training in the detection and management of malnutrition. In the case of home enteral nutrition, service providers have the task of training primary caregivers and professional carers, and must provide the equipment and nutrition products. They must also monitor the safety of enteral nutrition administration procedures and inform the doctor about any abnormality in the system. This nutritional monitoring is ensured by a dietician or a nurse.

Hospital-at-Home units (HAD) are also responsible for providing nutritional support for the patients that they manage. This support must be ensured by a dietician or a nurse.

8.2 In institutions

Managers and carers in institutions should take particular care to detect malnutrition, first during the gerontological assessment performed on admission, then by monthly measurement of body weight and follow-up of food intake. They are instructed by the coordinating doctor or primary care doctor.

The management of malnutrition is ensured by a multidisciplinary team, supervised by the coordinator doctor.

8.3 In hospitals

The role of the diet and nutrition liaison committee (CLAN) which is composed of doctors, administrative directors, senior healthcare staff, dieticians, pharmacists, nurses and nursing auxiliaries, is to issue opinions or proposals in order to improve the nutritional management of patients and the quality of the whole dietary-nutrition service.

Interdepartmental nutrition units (UTN) should be set up in hospitals to provide global management of malnutrition.

Appendix 1. Assessment method used to produce the clinical practice guidelines

Clinical guidelines have been defined as proposals established using an explicit method to help healthcare professionals and patients find the most appropriate care in a given clinical situation.

The *clinical practice guidelines (CPG)* method is one of the methods used by HAS to produce clinical guidelines. It is based on critical analysis and review of the available medical literature as well as on the opinion of a multidisciplinary group of professionals involved with the subject of the guidelines.

Choosing subjects for guidelines

The HAS Board chooses the subjects for clinical guidelines. In selecting subjects the Board takes into account public health priorities and any requests from ministers responsible for health and social security. The HAS Board can also accept subjects proposed by learned societies, the French national cancer institute, the French Association of National Health insurance funds, the French National Association of Healthcare Professions, organisations representing health care professionals or establishments or registered user groups.

Steps of the working method

Steering committee

HAS sets up a steering committee made up of representatives of the learned societies, professional or user organisations and, if need be, of the relevant health agencies and institutions. The committee defines exactly the subject of the guidelines, the questions to be discussed, the patient populations and the professionals for whom the guidelines are intended. It draws attention to relevant publications, particularly existing guidelines. It proposes suitable professionals to take part in working groups and act as peer reviewers. Finally it takes part in the peer review.

Working group

HAS sets up a multidisciplinary and multiprofessional working group made up of healthcare professionals who practice within the French national health service or privately and who come from different geographical backgrounds or represent different schools of thought and, if appropriate, of other concerned professionals and representatives of patient and user organisations. HAS appoints a working group chair to coordinate the group's work in collaboration with the HAS project manager. A report author is also designated by HAS to select, analyse and review the relevant medical and scientific literature (see box). The report author drafts the scientific report and assigns the chosen studies levels of evidence, under the supervision of the HAS project manager and the working group chair.

Sources for drafting the scientific report

- Medical and scientific databases searched systematically over an appropriate time period for the subject (languages: French, English). In particular, search for clinical practice guidelines, consensus conferences, medical decision-aid articles, systematic reviews, meta-analyses and other assessments.
- If appropriate, more specific databases (e.g. health economics)
- All useful internet sites (government agencies, learned societies, etc.)
- Grey literature (documents which cannot be accessed through conventional channels)
- Legislative and regulatory texts which could be related to the subject
- Cited references in the articles retrieved (manual search)
- Articles provided by the members of the working group and by peer reviewers.

Searches are updated regularly until the project is complete.

Producing the draft guidelines

The working group produces draft guidelines based on the report and the opinions expressed during the meetings of the working group (usually two meetings). Guidelines are graded A, B or C on a scale proposed by HAS according to the level of evidence on which they are based.¹⁰ The grading used for the guidelines is given in the box below. The draft guidelines are then submitted to the peer reviewers.

Peer reviewers

HAS appoints the peer reviewers using the same criteria as for working group members. The peer reviewers are consulted by post and give an opinion on the content and structure of the report and guidelines, in particular on whether the guidelines are easy to read, to understand and to apply. Members of the HAS specialist committee responsible for professional guidelines (Committee for the Assessment of Healthcare Strategies) also peer review the guidelines.

¹⁰ For more information on the method of producing clinical practice guidelines, see ANAES 1999 guide (in French): “*Recommandations pour la pratique clinique - Base méthodologique pour leur réalisation en France*”. www.has-sante.fr.

Grading of guidelines

Grade	Scientific evidence level
A	trials of a high level of evidence (level of evidence 1), e.g. high-power randomised controlled trials (RCTs) free of major bias and/or meta-analyses of RCTs or decision analyses based on level 1 trials.
B	studies of an intermediate level of evidence (level of evidence 2), e.g. RCTs with some bias, meta-analyses based on questionable methodology, well-conducted non-randomised controlled trials or cohort studies;
C	studies of a lower level of evidence, e.g. case control studies (level of evidence 3) or case series (level of evidence 4).

In the absence of reliable publications, the guidelines are based on professional agreement among members of the working group and peer reviewers.

Final version of the guidelines

The working group analyses the peer reviewers' comments, amends the report if necessary, and produces the final version of the guidelines and a quick reference guide (QRG), during a working session.

The final version of the report and guidelines and the procedure used to produce them are discussed by the Committee for the Assessment of Healthcare Strategies which may ask the working group to make amendments before submitting its opinion to the HAS Board.

Validation by the HAS Board

The HAS Board validates the final report and authorises its distribution.

Distribution

HAS makes available on its website (www.has-sante.fr), free of charge, the report, the guidelines and the Quick Reference Guide (QRG). HAS may decide to print both the QRG and the guidelines.

www.has-sante.fr

Appendix 2. Mini Nutritional Assessment (MNA[®])

Adapted from Nestlé Nutrition Services[®], Société des Produits Nestlé S.A., Vevey, Switzerland, Trademark Owners 1998

Name: _____ First name: _____ Gender: _____ Date: _____
 Age: /__/__/ cm Weight: /__/__/ kg Height: /__/__/ cm Knee height: /__/__/ cm

Screening

Has the patient lost appetite?

Has food intake declined over the past three months due to loss of appetite, digestive problems, chewing or swallowing difficulties?

0: severe loss of appetite; 1: moderate loss of appetite; 2: no loss of appetite

Recent weight loss (< 3 months)

0: weight loss > 3 kg; 1: does not know; 2: loss between 1 and 3 kg; 3: no weight loss

Mobility?

0: bed or chair bound; 1: able to get out of bed; 2: goes out of the house

Has the patient suffered psychological stress or acute disease in the past three months?

0: yes; 2: no

Neuropsychological problems

0: severe dementia or depression; 1: mild dementia or depression; 2: no psychological problem.

Body mass index (BMI) = weight in kg/height in m²

0: BMI < 19; 1: 19 < BMI < 21; 2: 21 < BMI < 23; 3: BMI > 23

Screening Score (max. subtotal = 14 points)

12 points or more: normal and no need to continue the assessment

11 points or less: the patient may be at nutritional risk – continue the assessment

Global assessment

Does the patient live independently at home?

0: no; 1: yes

Takes more than 3 prescription drugs per day?

0: yes; 1: no

Pressure sores or skin ulcers?

0: yes; 1: no

How many full meals does the patient eat daily?

0: 1 meal; 1: 2 meals; 2: 3 meals;

Does the patient eat:

- At least one serving of dairy products per day? Yes No

- One or two servings of eggs or pulses per week? Yes No

- One serving of meat, fish or poultry every day? Yes No

0.0: if 0 or 1 yes; 0.5: if 2 yes; 1.0: if 3 yes ,

Eats two or more servings of fruits or vegetables per day?

0: no; 1: yes

How many cups of fluid does the patient consume per day? (water, juice, coffee, tea, milk, wine, beer...) ,

0.0: < 3 cups; 0.5: 3 to 5 cups; 1.0: > 5 cups

Mode of feeding

0: requires assistance; 1: self-fed with some difficulty; 2: self-fed without any problem

Self-view of nutritional status? (nutritional problems)
 0: severe malnutrition; 1: does not know or mild malnutrition; 2: no nutritional problem

In comparison with other people of the same age, how do they consider their health status? ,

 0.0: not as good; 0.5: does not know; 1.0: as good; 2.0: better

Mid-arm circumference (MAC in cm) ,

 0.0: MAC < 21; 0.5: 21 < MAC < 22; 1.0: MAC > 22

Calf circumference (CC en cm)
 0: CC < 31 1: CC ≥ 31

Global assessment (max. 16 points) ,

Screening score

TOTAL SCORE (maximum 30 points) ,

Assessment of nutritional status

17 to 23.5 points: patient at risk of malnutrition

< 17 points: poor nutritional status

Appendix 3. Food fortification methods

Milk powder Whole milk concentrate	3 soup spoonfuls (~20 g) provide ~ 8 g of protein
Protein powder (1 to 3 soup spoonfuls/day)	1 soup spoonful (~5 g) in 150 ml of liquid or 150 g of mashed potatoes provides ~5 g of proteins
Grated cheese/cheese spread such as Gruyere cream	20g of Gruyere = ~5 g of proteins 1 30-g portion of gruyere cream = ~4 g of protein
Eggs	1 yolk = ~3 g of protein
Thick fresh cream	1 soup spoonful (~25 g) = ~ 80 calories
Melted butter/oil	1 soup spoonful (~10 g) = ~ 75 to 90 calories

- ◆ Soups: By adding soup pasta, tapioca, bread, bread crust (croutons), fresh cream, butter, cheese (gruyere, gruyere cream etc.), powdered milk, eggs, ham.
Fish soups are another possibility.
- ◆ Starters: Complete raw vegetables with hard-boiled eggs, thin ham slices, diced bacon, diced chicken, tuna, sardines, herrings, shrimps, surimi or cheese cubes, croutons, sweet corn, raisins, olives etc.
Vary with ham sausage, meat pastes, potatoes or cereal salads, pastry starters.
- ◆ Protein dish: Choose naturally rich dishes such as meats in sauces, soufflés, fish gratins, quenelles, lasagna, stuffed pasta etc.
- ◆ Vegetables: Serve them whenever possible in bechamel or white sauce, or as a gratin fortified with powdered milk, gruyere, fresh cream, butter, eggs, minced meat etc.
- ◆ Mashed potatoes: Add egg yolks, gruyere or other grated cheese, powdered milk etc.
- ◆ Pasta and rice: Add parmesan or grated gruyere, butter, fresh cream, egg yolks as for spaghetti carbonara, diced ham, ham, minced meat as in spaghetti bolognese, peas, or pieces of omelette as for Cantonese rice etc.
- ◆ Dairy produces and desserts: Add powdered milk, sweetened milk concentrate, fresh cream, jam, honey, chestnut purée, caramel, chocolate, strawberry toppings..., fruits like banana, fruits in syrup, etc.
High-energy desserts include semolina or rice pudding, egg flans, custard or egg-based cream, fruit clafoutis, sponge cake, crumbles etc.
- ◆ Drinks: Fortify milk with powdered milk (one soup spoonful per 100 ml preferably) and drink hot or cold with chocolate, coffee, or fruit flavours.
Other possibilities include eggflip (an egg beaten with milk, sugar, vanilla or rum) or milk shake (milk + fresh cream + fruits).
Fortify fruit juice with powdered milk or honey.

Participants

Learned societies and professional associations

Société Francophone de nutrition entérale et parentérale
Club francophone de gériatrie et nutrition
Société Française d'accompagnement et de soins palliatifs
Société Française de gériatrie et de gérontologie
Association des diététiciens de langue française
Fédération nationale des infirmiers
Société de formation thérapeutique du généraliste
Club francophone de gériatrie et nutrition
Fédération nationale des établissements d'hospitalisation à domicile
Association Française des Directeurs de soins
Société française de nutrition
Société française de documentation et de recherche en médecine générale
Société nationale française de gastro-entérologie
Collège français de médecine générale
Société nationale française de médecine interne

Steering Committee

Dr. Astrid Aubry, geriatrician, Aix
Dr. Jean-Louis Bresson, nutritionist,
Jouy-en-Josas
Dr. Pierre Claveirole, general
practitioner, Chelles
Dr. Thierry Constant, internist/
geriatrician, Tours
Marie-Dominique Daniel-Lamazière,
dietician, Paris
Nadine Favier, nurse, Paris
Dr. Madeleine Favre, general
practitioner, Vincennes

Dr. Monique Ferry, geriatrician/
nutritionist, Valence
Professor Éric Lerebours, gastro-
enterologist, Rouen
Dr. Bruno Lesourd, geriatrician,
Cébazat
Françoise Meissan, Hospital-at-Home
nurse coordinator, Saint-Herblain
Professor Muriel Rainfray,
geriatrician, Pessac
Dr. Claude Rosenzweig, general
practitioner, Gévèze
Dr. Bruno Vellas, internist, Toulouse
Kiné Veyer, Healthcare Director, Paris

Working group

Professor Xavier Hébuterne,
gastroenterologist/nutritionist,
Nice – Chairman
Dr. Agathe Raynaud, geriatrician,
Ivry-sur-Seine – author of draft
report
Dr. Christine Revel-Delhom, project
leader, HAS, Saint-Denis
Danielle Alexandre, dietician, Lille

Dr. Emmanuel Alix, geriatrician, Le
Mans
Raphaëlle Ancellin, AFSSA project
leader, Maisons-Alfort
Dr. Bouteloup Corinne, nutritionist,
Clermont-Ferrand
Professor Patrice Brocker,
geriatrician, Nice
Dr. Sylvie Chapiro, geriatrician,
Villejuif

Dr. Nathalie Dumarçet, AFSSAPS
project leader, Saint-Denis
Adeline Hasle, dietician, Blois
Dr. Jean-Marc Lecocq, geriatrician,
general practitioner, Sugères
Marie-Paule Lefèvre, social assistant,
Ivry-sur-Seine

Anne l'Hermine, nurse coordinator,
Nantes
Dr. Jérôme Lurcel, general
practitioner, Paris
Nadine Ménivard, nurse, Nantes
Marie-Anne Perette, Euville
Anne-Marie Perrin, nurse coordinator

Peer reviewers

Aurélié Baptiste, dietician, Limoges
Dr. Philippe Bergerot, oncologist,
CESS rapporteur, Saint-Nazaire
Séverine Bergon, pharmacist, General
Directorate of Health (DGS), Paris
Annick Boissel, independent nurse,
Aix-en-Provence
Professor Isabelle Bourdel-
Marchasson, geriatrician, Pessac
Dr. Valérie Brénière, geriatrician, Aix-
en-Provence
Dr. Claudine Castany-Serra, specialist
in palliative care,/chronic pain, Salon-
de-Provence
Dr. Annie Chambon, long-stay
geriatrician, Ambert
Dr. Nathalie Charasz, geriatrician, Paris
Dr. Dominique Chavanne, geriatrician,
Tours
Cécile Cimetière, psychologist, Ivry-
sur-Seine
Dr. Isabelle Cusier-Jeudy, general
practitioner/gerontologist, Montmerault
Laurence Debord-René, dietician,
Montmorillon
Dr. Jacques Delarue, nutritionist, Brest
Dr. Eric Drahi, general practitioner,
CESS rapporteur, Saint-Jean-de-
Braye
Dr. Jean-Louis Ducros, geriatrician/
general practitioner, Saint-Gérard Le
Puy
Carole Durand, psychologist, Seiches-
sur-le-Loir
Dr. Anne Fourquier, general
practitioner,/geriatrician, Nantes
Dr. Claire Guédon, gastroenterologist,
Rouen

Professor Marc Heim, geriatrician,
Marseille
Dr. Raymond Hermet, geriatrician/
palliative care, Cébazat
Sylvie Humbert, dietician, Paris
Dr. Martine Iehl-Robert, geriatrician/
rheumatologist, Besançon
Dr. Marc Lamandé, geriatrician, Tours
Dr. Jean-Michel Lecerf, nutritionist,
Lille
Jean-Paul Lemoine, independent
nurse, Sangatte
Christine Martinez, dietician, Pessac
Dr. Aude Massoulard, geriatrician,
Limoges
Dr. Olivier Michel, geriatrician, Rennes
Claire Moysset, dietician, Paris
Dr. Bertrand Mussetta, HAS project
leader, Saint-Denis
Dr. Sophie Olesker, general
practitioner, Antony
Professor Fred Paccaud, public health,
CESS rapporteur, Lausanne
Dr. Claude Pichard, nutritionist,
Genève
Jean-Pierre Poulain, sociologist,
director of CRITHA, Toulouse
Professor Patrick Ritz, nutritionist,
Angers
Dr. Jean-Antoine Rosati, general
practitioner, Chantelle
Professor Jean-Louis Schlienger,
internist/nutritionist, Strasbourg
Dr. David Séguy, hepatogastro-
enterologist, nutritionist, Lille
Dr. Denise Strubel, geriatrician, Nîmes
Dr. Catherine Taillefer, hospital
pharmacist, Tarascon
Pierre Van Cuyck, dietician, Langon

Summary data sheet

TITLE	Nutritional support strategy in protein-energy malnutrition in the elderly
Method of guideline production	HAS' method for clinical practice guidelines
Objective(s)	To devise a practical tool for identifying and managing elderly subjects who are malnourished or at risk of malnutrition.
Health professionals concerned	All health professionals who may have to manage malnourished elderly subjects or those at risk of malnutrition, and more particularly for general practitioners, geriatricians, dieticians, nurses, nutritionists, and gastroenterologists.
Requested by	French General Health Directorate
Sponsor	Haute Autorité de Santé (HAS)
Project management	Coordination: Dr Christine Revel, project leader, professional guidelines department; Dr Najoua Mlika-Cabanne, Deputy head of department (head of department: Dr Patrice Dosquet) Secretarial services: Isabelle Le Puil Documentary research: Mireille Cecchin, with the assistance of Sylvie Lascols, HAS documentation department (head of department: Frédérique Pagès, PhD)
Participants	Learned societies Steering Committee Working group (chairman: Professor Xavier Hébuterne, gastroenterologist/nutritionist, Nice) Peer reviewers (see lists)
Literature search	From January 1995 to June 2006
Author of draft report	Dr Agathe Raynaud Simon, geriatrician, Ivry sur Seine
Validation	Committee for Health Strategy Assessment (Mar. 2007) Validation by the HAS Board on April 2007
Other formats	Quick reference guide (in English) Full scientific report (in French only) Downloads available free of charge at www.has-sante.fr
Related documents	“Diagnostic assessment of protein-energy malnutrition in hospitalized adults” (ANAES, Sept. 2003) (in French) “Reimbursement procedures for dietary foods for special medical purposes for nutritional supplementation and home enteral nutrition” (HAS, Sept. 2006) (in French).