

ESPEN GUIDELINES

on Home Enteral Nutrition (HEN)



SUMMARY AND KEY MESSAGES

Home Enteral Nutrition (HEN) is a medical treatment, and evidence confirms that HEN is a safe, well-tolerated and cost-effective procedure. Decisions on route, content and management of nutritional support are best made by multi-disciplinary Nutrition support teams (NST). HEN is indicated in patients who are at high risk of malnutrition or if they are malnourished, who are unable to meet nutritional requirements by the oral route and have a functional gastrointestinal tract.

There are only minor differences in the indication for HEN and for in-hospital enteral nutrition (EN). In HEN, additional criteria need to be considered carefully such as prognosis, health-related quality of life (QoL), impact on patients nutritional state, and any ethical aspect of the treatments.



AIM

The aim of this ESPEN guideline is to provide guidance and inform about the evidence based recommendations for indications and contraindications for HEN and its implementation and monitoring. The target groups for this guideline are physicians, nurses, dieticians, pharmacists, caregivers and other HEN providers.

Evidence level and grades of recommendation



Levels of evidence

- 1++** High quality meta-analyses, systematic reviews of RCT (Randomized clinical trial), or RCTs with a very low risk of bias.
- 1+** Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias.
- 1** Meta-analyses, systematic reviews, or RCTs with a high risk of bias.
- 2++** High quality systematic reviews of case control or cohort or studies. High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal.
- 2+** Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal.
- 2-** Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal.
- 3** Non-analytic studies, e.g. case reports, case series.
- 4** Expert opinion.



Grades of recommendation

- A** At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or a body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results.
- B** A body of evidence including studies rated as 2++, directly applicable to the target population; or A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1++ or 1+.
- 0** Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2++ or 2+.
- GPP** Good practice points/expert consensus: Recommended best practice based on the clinical experience of the guideline development group.

When to use HEN

Indication and contraindication for HEN

HEN should be offered to patients at nutritional risk or if they are malnourished, who cannot meet their nutrient requirements by normal dietary intake, who have a functioning gastrointestinal tract, who are able to receive therapy outside of an acute care setting and who agree and are able to comply with HEN therapy with the goal of improving body weight, functional status or QoL.

Grade of recommendation GPP – Strong consensus (97% agreement)

When is HEN not to be recommended? (Contraindication)

If life expectancy is estimated to be less than one month, HEN usually shall not be initiated.

Grade of recommendation: GPP – Consensus (78% agreement)

Complex diseases where HEN is needed:

- Swallowing disorders because of neurological diseases
- Obstructions because of malignancies
- Cachexia because of cancer
- Chronic obstructive pulmonary disease
- Heart disease
- Chronic infections
- Malabsorption/maldigestion because of liver, pancreas or intestinal diseases

Which formula for special situations are needed?

Fiber-containing feeds shall normally be used for patients with diarrhea.

Grade of recommendation: A – Strong consensus (92% agreement)

Fiber-containing feeds should be used for patients with constipation.

Grade of recommendation: B – Strong consensus (96% agreement)

A modified enteral formula with lower sugar content, containing slowly digestible carbohydrates and a fat content enriched in unsaturated fatty acids, especially monounsaturated fatty acids may be used for patients with diabetes.

Grade of recommendation: O – Majority agreement (60% agreement)

Blended tube feeds in HEN support

Which nutritional products (standard formula) are recommended?

Standard commercial enteral tube feeds can be used for HEN support, unless specific justification for a blended tube feed.

Grade of recommendation: 0 – Strong consensus (92% agreement)

Home-made blenderized admixtures are less effective than EN formula or commercially produced 'whole food' solutions, they should not be utilized in patients on HEN.

Grade of recommendation: GPP – Majority agreement (63% agreement)

Home-made blenderized admixtures are less safe than EN formula or commercially produced 'whole food' solutions, they should not be utilized in patients on HEN.

Grade of recommendation GPP – Consensus (76% agreement)

Additional comments on usage of blended tube feeds

Blended tube feeds are common in HEN support

Blended tube feeds are reported to improve tolerance and lead to fewer adverse gut symptoms. However, concerns remain regarding safety and a lack of knowledge about their preparation. Blended tube feeds are also considered to be time-consuming and costly to prepare.

Concerns also remain regarding reports of poor standardization of blended tube feeds and risks of microbial contamination and product instability compared to commercial tube feed.

Blended food, although without clear benefit compared to commercial food, is still occasionally used in chronic patients at home, but not in hospitals. If used at all, it should be administered via a large tube (ch 14) or a PEG (Percutaneous endoscopic gastrostomy) to prevent from clogging.

Devices for HEN

How should the HEN be administered (bolus or continuous), with pumps or mobile devices?

The method of HEN administration should be a decision of the multidisciplinary Nutrition support teams (NST), involved with the patient care, considering patient's disease, type of feeding tube in position, feed tolerance and patient preference.

Grade of Recommendation GPP – Strong consensus (100% agreement)

Bolus or intermittent continuous or continuous infusion through a pump may be used depending on clinical need, safety and level of precision required.

Grade of Recommendation GPP – Strong consensus (92% agreement)

Can an enteral tube being used for HEN also be used for drug administration? If yes, how should an enteral tube be used for drug administration?

An enteral tube being used for EN can also be used for drug administration if the efficacy of drug administration can be confirmed.

Grade of recommendation GPP – Strong consensus (92% agreement)

If an enteral tube is used for drug administration, adequate information should be offered to patients and carers with the involvement of a pharmacist.

Grade of recommendation GPP – Strong consensus (100% agreement)

Healthcare professionals and HEN



Which healthcare professionals should be involved in the management of HEN?

For optimal management of HEN, a NST approach may include – in addition to a physician, a dietician/nutritionist and a nurse – other allied healthcare professionals (for example, speech and language therapists, physiotherapists and occupational therapists, and pharmacists as necessary).

Grade of recommendation GPP – Strong consensus (97% agreement)

The HEN team provides support to patients who are being fed via enteral feeding tube in the community. However, the organization of services to support the increasing number of people receiving HEN varies across regions. UK NICE guidelines outline that people receiving HEN in the community should “be supported by a coordinated multidisciplinary team”.

Monitoring and termination of HEN



When and how should patients prescribed HEN be monitored?

HEN patients should be monitored for the efficacy and complications of HEN, which requires a good forward planning and communication between acting persons (physicians, nurses, caregivers etc.).

Grade of recommendation GPP – Strong consensus (96% agreement)

Monitoring of efficacy should be based primarily on body weight, body composition and hydration status, but may also include laboratory measurements, such as serum albumin or transthyretin (¼ prealbumin). Monitoring of complications should include tube- and EN-associated complications.

Grade of recommendation GPP – Consensus (83% agreement)

When and how should QoL be assessed in these patients?

During HEN treatment QoL should be measured periodically.

Grade of recommendation GPP – Strong consensus (92% agreement)

QoL is one of the patient-related outcomes necessary to evaluate the effect of the treatments. HEN has a considerable physical, social and psychological effect on the lives of patients and their caregivers. Support at the time of tube placement, and regular ongoing support, can help to minimize the impact on both, enabling them to make the most of their daily lives, sleep better, and enjoy an overall higher QoL.



The tube feed that contains ingredients from real food



A nutritionally complete tube feed that contains real food that the stomach recognizes – e.g. chicken, peas*, beans*, peach puree and orange juice.*

Isosource Mix

- Offers great fiber variation from vegetables and fruit, protein from four different sources, as well as vegetable oils and fish oil.
- Tube feed that contains real food can lead to better tolerance.^{1,2}

Isosource Junior Mix

- High-energy tube feed, specially developed for children from 1 year. With macro- and micro nutrients adapted to the needs of paediatric patients and offering great fiber variation from eight sources including vegetables and fruit, protein from four sources, as well as vegetable oils, MCT and fish oil.
- Experience shows that tube feed that contains real food or ingredients from the real food can lead to better tolerance¹⁻⁴ and symptoms.⁵

*rehydrated chicken, rehydrated vegetables and juice from concentrate

Ref 1: Samela K, et al. Transition to a Tube Feeding Formula With Real Food Ingredients in Pediatric Patients With Intestinal Failure. *Nutr Clin Pract.* 2017;32(2):277–281. **2.** Thorton Wood et al. To evaluate the acceptability (including gastrointestinal tolerance and compliance) of a paediatric enteral formula with ingredients derived from Real Food for children over 12 months of age. *Clinical Nutrition.* 38 SUPPL 2019; 297–322. **3.** Hurt RT, et al. Blenderized Tube Feeding Use in Adult Home Enteral Nutrition Patients. *Nutr Clin Pract.* 2015;30(6):824–829. **4.** Kluge et al. The Effect of a Low Calorie, Nutrient Dense Formula on the Use of Modular Nutrition Supplements in Children with Developmental Disabilities. *JPGN*, Volume 57, Suppl 1, October 2013. **5.** Pentiuik S, et al. Pureed by Gastrostomy Tube Diet Improves Gagging and Retching in Children with Fundoplication. *J Parent Enteral Nutr.* 011;35(3):375–379.

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