



PMB definition guideline for medical nutrition therapy in palliative care (adults)

DISCLAIMER

The medical nutrition therapy in palliative care (adults) benefit definition has been developed for the majority of standard patients. These benefits may not be sufficient for outlier patients. Therefore Regulation 15(h) and 15(l) may be applied for patients who are inadequately managed by the stated benefits. The benefit definition does not describe specific in-hospital management such as theatre, anaesthetists, anaesthetist drugs and nursing care. However, these interventions form part of care and are Prescribed Minimum Benefits.

The benefit definition is intended to provide more clarity and guidance following the publication of the best supportive care guideline on 31 March 2017.

TABLE OF CONTENTS

Disclaimer	ii
Abbreviations	iv
Definitions	v
1. Introduction	7
2. Scope and Purpose	7
3. Nutrition in Palliative Care	8
4. Medical Nutrition Therapy (MNT) in Palliative Care	8
5. Nutrition in end-of-life	9
6. Multidisciplinary Teams	9
7. Progress Report	10
8. Dietetic Services Provided	10
9. Entry Criteria for MNT in Palliative Care patients	10
10. Route of MNT Provision	11
10.1. Oral Nutrition Supplementation (ONS)	11
10.2. Enteral Tube-feeding	12
11. Exit Criteria	13
12. Nutrition-related PMB's for Palliative and end-of-life care in adults	14
13. Bibliography	20

ABBREVIATIONS

CMS	-	Council for Medical Schemes
PMB	-	Prescribed Minimum Benefit
DTPs	-	Diagnosis Treatment Pairs
MNT	-	Medical Nutrition Therapy
DRM	-	Disease-related Malnutrition
COPD	-	Chronic Obstructive Pulmonary Disease
PEM	-	Protein Energy Malnutrition
BMI	-	Body Mass Index
ONS	-	Oral Nutrition Supplementation
PEG/PEJ	-	Percutaneous Endoscopic Jejunostomy / Percutaneous Endoscopic Gastronomy
PN		Parenteral Nutrition

DEFINITIONS

Palliative Care

This PMB benefit, as with the other PMB benefits for all other aspects of Palliative Care management, is defined with reference to the WHO Definition of Palliative Care, as follows:

“Palliative care is an approach that: improves the quality of life of patients and families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

Palliative care:

- *provides relief from pain and other distressing symptoms;*
- *affirms life and regards dying as a normal process;*
- *intends neither to hasten nor postpone death;*
- *integrates the psychological and spiritual aspects of patient care;*
- *offers a support system to help patients live as actively as possible until death;*
- *offers a support system to help the family cope during the patient’s illness, and in their own bereavement;*
- *uses a team approach to address the needs of patients and their families, including bereavement counselling, if indicated;*
- *will enhance quality of life, and may also positively influence the course of illness;*
- *is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those investigations needed to better understand and manage distressing clinical complications.*

This definition is consistent with the 2017 National Department of Health (NDoH) Policy Framework and Strategy on Palliative Care.

Medical Nutrition Therapy (MNT)

A therapeutic approach to treating medical conditions and their associated symptoms via the use of a specifically tailored nutritional intervention devised and monitored by a registered dietitian, and based upon the patient’s diagnosis, medical record, treatment plan, clinical course, physical examination, symptoms and full nutritional assessment (adapted from Skipper, 2009).

Disease-related malnutrition (DRM)

A malnutrition syndrome which result from illness or disease and presenting as a loss of body mass/low body mass index (i.e. evidence of Protein-Energy Malnutrition) and/or compromised nutritional intake with functional impairment (derived from Jensen, 2013).

Diagnostic Categories

The diagnostic categories which are included in this PMB code for nutritional support include HIV/AIDS, cancer, chronic kidney disease, chronic liver disease, chronic heart disease, chronic obstructive pulmonary disease (COPD), stroke, progressive and non-progressive neurological diseases,.

1. INTRODUCTION

- 1.1. The legislation governing the provision of the Prescribed Minimum Benefits (PMBs) is contained in the Regulations enacted under the Medical Schemes Act, No. 31 of 1998 (the Act). With regards to some of the Diagnosis Treatment Pairs (DTPs), medical scheme beneficiaries find it difficult to be fully aware of their entitlements in advance. In addition, medical schemes interpret these benefits differently, resulting in a lack of uniformity of benefit entitlements.
- 1.2. The benefit definition project is undertaken by the Council for Medical Schemes (CMS) with the aim of defining the PMB package, as well as to guide the interpretation of the PMB provisions by relevant stakeholders.

2. SCOPE AND PURPOSE

- 2.1. The guidelines are intended as a recommendation for medical nutrition therapy (MNT) in palliative care for adults in any clinically appropriate setting as outlined in the Act.
- 2.2. The purpose of this guideline is to provide a detailed clarification in respect of benefits and entitlements to members and beneficiaries of medical schemes.

Table 1: Applicable PMB code for identifying medical nutrition therapy in palliative care (adults)

PMB Code	PMB Description		ICD10 Code	ICD10 Description
260S	# Imminent death regardless of diagnosis	# Comfort care; pain relief; hydration	Z51.5	Palliative care

3. NUTRITION IN PALLIATIVE CARE

- 3.1. Progressive and chronic disease processes, especially where associated with chronic or episodic acute inflammatory components, are frequently associated with a specific malnutrition syndrome, known as disease-related malnutrition (DRM) (Jensen, Compher, Sullivan, & Mullin, 2013).
- 3.2. DRM occurs in 30-70% of patients with chronic and incurable disease, and is associated with poor outcomes, and, in some conditions, independently impacts negatively upon prognosis (Arends, *et al*, 2008). Such malnutrition syndromes in cancer and other chronic, progressive or incurable conditions cause fatigue, anorexia, early satiety, weakness, reduced performance status and reduced quality of life (Norman, *et al*, 2008; Correia & Waitzberg, 2003).
- 3.3. Additionally, malnourished patients experience a more rapid clinical deterioration and faster disease progression, decrease in tolerance of palliating interventions, develop a range of clinical complications, require more management interventions, and have longer duration of in-hospital care (both hospital stay and number of new hospitalisations). Consequently, their clinical care is more challenging and costly; and is associated with worse psychosocial distress (Arends, *et al*, 2017a; Fukuda, *et al*, 2015).

4. MEDICAL NUTRITION THERAPY IN PALLIATIVE CARE

- 4.1. Nutrition support was previously seen as adjunctive to other medical care. However, the field has evolved to the extent that MNT is regarded as a therapeutic strategy, which forms an integral part of medical care.
- 4.2. MNT is a form of metabolic support which can influence the response to the disease process, alter the clinical course, influence response to treatment, positively impact on the quality of life, and even alter the survival trajectory (Arends, *et al*, 2017a). Nutrition support may slow physical deterioration, enhance tolerance to other palliative interventions, enhance life quality, and provide a considerable psychological benefit to patients and family members who may find the perception of “starving to death” distressing. Additionally, such patients may have significant nutrition-relevant symptoms, requiring management by a dietitian.
- 4.3. MNT in the palliative setting can confer multiple benefits such as: management of gastrointestinal symptoms, hunger and thirst; management of anaemia and fatigue; improved response to and tolerance of medical treatments; improved sense of wellness and dignity; patient enabled to retain a sense of control over their illness; increased energy and functional capacity; the countering of muscle wasting; possible improved nutritional status; modulated disease progression; and maintenance of immune competence (Laviano, 2016; Arends, 2017; Filteau, 2017).
- 4.4. While there are multiple clinical benefits of MNT, some of the cost savings benefits cited, which include a reduction in hospital length of stay; reduced costs of treatment of disease and malnutrition-related morbidities; reduced hospitalisations and reduced overall higher global healthcare spend; outweigh the cost associated with provision of nutrition support throughout the entire palliation journey (Freijer, *et al*, 2013a, Freijer, *et al*, 2014b).

- 4.5. Nutritional support in palliative care should be attentive to ethical principles, patient/family expressed desires, and advance directives. A mere diagnosis of incurable status does not preclude the use of artificial nutrition support, and ethical problems may arise if nutrition support is withheld and, in so doing, the patient's death is accelerated as a result of ensuing malnutrition. Conversely, continued nutrition support may not be benign and may be associated with risks. Risk-benefit or benefit-burden analysis is required at various stages of the disease progression (Druml, *et al*, 2016).
- 4.6. It is essential in palliative care, that an integrated pathway be established for nutrition support to continue outside of the hospital setting. Home enteral nutrition is simple and safe to perform and contributes to cost containment. Furthermore, it is important as an ethical imperative to reduce the pressure on in-patient facilities, as a distributive justice measure.
- 4.7. In the palliative setting, dietetic consultations may be required in the hospital setting, or as part of out-patient care. Initial, detailed consultations which require extensive nutritional assessment and interventions may be up to 45 minutes in length, particularly for new referrals. Subsequent consultations for routine monitoring and follow-up are shorter (10 – 30 minutes in duration).

5. NUTRITION IN END-OF-LIFE CARE

- 5.1. Disease-related malnutrition and nutrition-related problems frequently persist and even worsen at this stage of illness. Nevertheless, nutrition support becomes significantly less important, and may worsen symptoms placing added burdens on carers or nursing staff, as well as the patient. One or possibly two short dietetic consultations (10-20 minutes in duration) may be required during this phase of illness.
- 5.2. Initiation of nutrition is not indicated during end-of-life care. There may be selected, unusual cases where enteral nutrition might be required at low levels until death (e.g. motor neurone disease, severe stroke etc) where there is no specific clinical or ethical indication for withdrawal, according to clinical judgement and bioethical principles (Druml, 2016).

6. MULTIDISCIPLINARY TEAMS

Due to the numerous facets entailed in the medical management of a patient in a palliative care journey, it is necessary that the management of such patients incorporates a multidisciplinary team. The members of the multidisciplinary team may comprise various health professionals as appropriate to the clinical case, but should include a registered dietitian who is responsible for the medical nutrition therapy of the patient (Jensen, *et al*, 2013), as requested by the primary care provider. The multidisciplinary team should produce an integrated care plan, of which a nutrition care plan compiled by a registered dietitian should form part.

7. PROGRESS REPORTS

The treating registered dietitian who forms part of the multidisciplinary team should provide regular follow-up evaluations of patients receiving MNT, and provide feedback reports to the managed care organisation on a 3 monthly basis, or more frequently as requested, depending on the clinical circumstances. The feedback report should indicate the basis on which MNT and the route of MNT should be continued or discontinued.

8. DIETETIC SERVICES PROVIDED

The MNT benefit should include a minimum number of consultations with a registered dietitian according to the schedule outlined in Table 4 below. The dietitian should follow a nutrition care process (Lacey & Pritchett, 2003), performing the following procedures at the consults, as appropriate:

- 8.1. **Nutrition Assessment and/or Re-assessment** based upon appropriate anthropometric techniques, biochemical data, clinical data, socio-economic information and nutritional/dietary intake data
- 8.2. **Nutrition Diagnosis** identifying nutritional problems and their causes or contributing factors
- 8.3. **Nutrition Intervention** including the determination of nutritional requirements, formulation of nutritional goals and implementing nutrition delivery. This may include training/counselling of caregivers or family members.
- 8.4. **Nutrition Monitoring and Evaluation** including the monitoring of progress, success and outcomes

These aspects of the nutrition care process should in turn be consistently reflected in the global clinical management plan, and the regular feedback/progress reports to the managed care organisation.

9. ENTRY CRITERIA FOR MNT IN PALLIATIVE CARE PATIENTS

The mere diagnosis of one of the abovementioned diseases, which will require a palliative care plan, does not automatically warrant nutrition support, but MNT should be provided once pre-defined entry criteria are met. Entry and exit criteria may depend on the disease and disease progression (See Table 4 for criteria for specific conditions), but certain global nutritional criteria are useful. Patients may exit and then later re-qualify for MNT benefits according to these criteria, because patterns of disease progression may be fluctuating and non-linear.

Patients with any of the above diagnoses become eligible for MNT when the following criteria, in line with nutrition support criteria of South African government hospitals, are met:

- Unintentional weight loss of $\geq 5\%$ has occurred regardless of the time period (see Table 2 below) **and**
- The presence of Protein-Energy Malnutrition (PEM) of any grade measured by body mass index (BMI), as assessed by a registered dietitian or other appropriately qualified health professional (see Table 3 below) **or**
- The presence of symptoms negatively impacting nutrient intake or assimilation or which increase nutritional losses.

Table 2. Weight loss history (Mahan, Escott-Stump & Raymond, 2012)

Classification of severity of malnutrition by percentage weight change		
Duration	Significant weight loss	Severe weight loss
1 months	5%	> 5%
3 months	7.5%	> 7.5%
6 months	10%	> 10%

Table 3: Classification of Protein-Energy Malnutrition (PEM) in adults (Lee & Nieman, 2003).

Body Mass Index (BMI): = $\frac{\text{Body weight (kg)}}{\text{Height (m)}^2}$	
BMI (kg/m ²)	PEM Severity
> 18.5	Normal
17.0 – 18.4	Mild
16.0 – 16.9	Moderate
<16	Severe

10. THE ROUTE FOR MNT PROVISION

Parenteral Nutrition (PN) may be considered when there is an acute and reversible clinical indication for the use of PN e.g. bowel obstruction amenable to surgery, or ileus. PN should also be considered when the gastrointestinal tract is not functional or accessible and where enteral or oral nutrition support would therefore be impossible or would not be able to sustain hydration or nutritional status. Examples of patients who may require PN are those with short bowel syndrome following extensive intestinal resections for cancer, or HIV-related gastrointestinal disease.

Patients qualifying to receive MNT may require oral nutrition supplementation (ONS) or may require enteral tube-feeding, in or out of hospital (see Figure 1). ONS are intended to supplement an oral diet. Enteral tube-feeds may provide the full nutritional requirement of the patient.

10.1. Oral Nutrition Supplementation (ONS)

ONS should be provided when **any** of the following criteria is met:

- Patients meet entry criteria for MNT
- Patients cannot achieve or maintain an intake meeting at least 80% of their nutritional requirements* with normal oral diet alone.
- Patients require significant texture or consistency modification of oral intake

10.2. Enteral Tube-feeding

Enteral tube-feeding should be provided when **any** of the following criteria is met:

- Patients meet entry criteria for MNT
- Patients have no contraindications to enteral feeding (enteral feeding is appropriate, necessary and feasible)
- Patients are unable to meet $\geq 80\%$ of their nutritional requirements* orally due to increased requirements, inadequate oral intake or symptoms (e.g. dysphagia)
- Oral intake is unsafe or impossible (e.g. structural or mechanical head/facial/dental pathology; reduced state of consciousness such that the patient cannot protect their own airway; dysphagia with risk of pulmonary aspiration; obstruction of the oropharynx, or any part of the upper gastrointestinal tract)
- Patients cannot take nutrition orally, and enteral feeding is appropriate and feasible, and in addition require specialised products as per the dietitian's clinical judgement, due to the nature of symptoms or other clinical condition (e.g. short bowel syndrome, malabsorption, organ dysfunction etc.).

** Note that nutrition requirements as calculated by the dietitian already account for relevant clinical circumstances, such as physical activity and degree of stress, which are incorporated into the calculation of requirements.*

Where advancing disease can be predicted to compromise or completely exclude oral intake months before the pre-terminal stage occurs, advanced care planning should include the option/possibility of prophylactic feeding tube placement and enteral nutrition support (tube-feeding) in the home setting, at least for certain patient sub-groups (see Table 4).

Enteral tube-feeding may be provided via a nasogastric/nasojejunal, jejunostomy or PEG/PEJ tube depending on the expected duration of enteral feeding. Patients requiring enteral tube-feeding should receive:

- a suitable enteral product which meets nutritional requirements and is regarded as clinically appropriate as prescribed by a registered dietitian
- the necessary consumable items required to deliver the enteral feed (administration sets, syringes etc)

Medically stable patients should not remain in hospital purely for the purposes of continued enteral feeding. Home enteral nutrition is safe, feasible and cost-effective with adequate pre-discharge training and appropriate caregiver support.

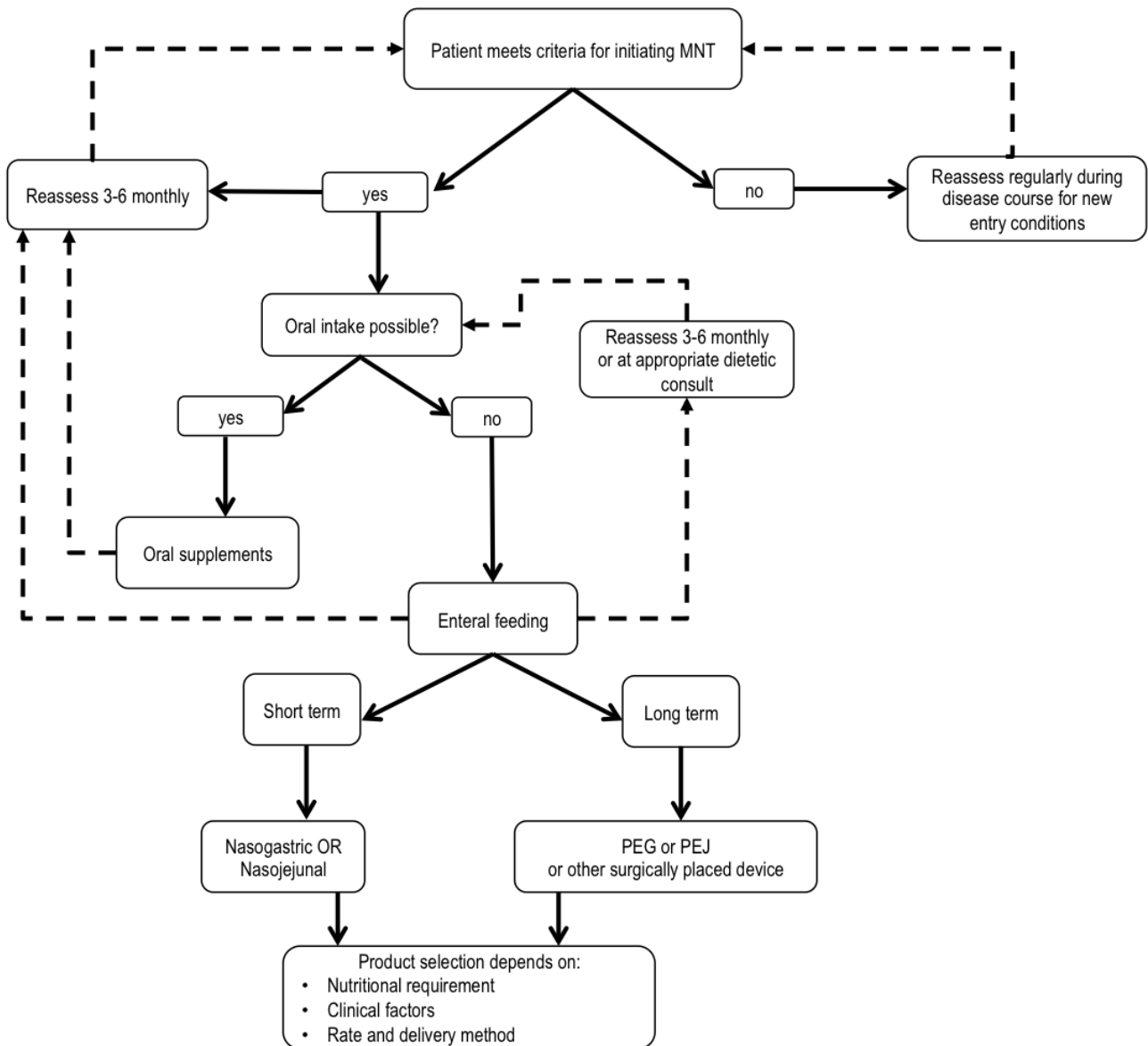


Figure 1. Algorithm for MNT delivery (adapted from A.S.P.E.N. Clinical Guideline 2009)

11. EXIT CRITERIA

Patients may be exited entirely from the MNT benefit when **any** the following criteria is met:

- BMI $\geq 18.5 - 20 \text{ kg.m}^{-2}$
- Patient has achieved expected/prescribed weight gain goals set by registered dietitian for three consecutive months
- Symptoms or clinical problems which necessitated commencement of MNT have resolved, or improved to the point where MNT is no longer required

For patients on enteral tube-feeds, enteral feeding may be discontinued when **any** of the following criteria is met:

- Ability to eat an oral diet returns and where oral intake will successfully provide at least 80% of nutritional requirement as evaluated by a dietitian

- Development of new complications or contraindications to tube-feeding as a result of the advancing disease process, necessitating stoppage of enteral feeds
- Risk/burden of continuation exceeds clinical benefit, including patient wishes
- On the recommendation of the dietitian

Patients discontinuing enteral feeding may still require ONS.

12. NUTRITION PMBS FOR PALLIATIVE AND END-OF-LIFE CARE IN ADULTS

Nutrition-related PMB's for palliative and end-of-life care in adults are shown in table 4 below. The following should be considered when interpreting the table below.

- For patients with any other diagnostic category where oral intake is not possible, enteral nutrition may be appropriate during an acute and reversible clinical condition or complication.
- Product types listed in the table represent the range of available products, which are selected by a dietitian based upon the patient's requirements together with other relevant clinical factors. There is no standardised product indicated for any particular diagnosis, and the concept of "generics" does not apply to nutrition support products. Development of formularies is encouraged when accompanied by rational, clinically-relevant algorithms for product selection.

Table 4: Nutrition-related PMB's for palliative and end-of-life care in adults

During Palliative Care Journey								
Nutrition Support PMB	Cancers		Neurological Disease	Heart Disease	Respiratory Disease	Kidney Disease	Liver Disease	HIV/AIDS and/or TB
		Oral intake possible	Oral intake not possible	Enteral Nutrition for selected patient subgroup: Progressive or non-progressive neurological disease with severe dysphagia (via nasogastric, pharyngostomy or PEG/PIG/PEJ tube per care plan)	Oral Nutrition supplements for patients with: Disease-related malnutrition and/or with significant meal-related dyspnoea and distress negatively impacting on oral intake	Oral Nutrition supplements for patients with: Disease-related malnutrition and/or with significant meal-related dyspnoea and distress negatively impacting on oral intake.	Oral Nutrition Supplementation for: Patients with disease-related malnutrition who cannot maintain adequate nutritional status within the context of necessary fluid, protein and electrolyte restrictions or uraemic symptoms	Oral Nutrition Supplementation for patients with: Disease-related malnutrition together with metabolic disturbances, anorexia, early satiety, or other symptoms reducing oral intake despite dietary management by dietitian

<p>Nutrition Products to be provided as part of PMB</p> <p>NOTE for all: 1. For In- or Out-of-hospital use 2. Product choice will depend on GIT and other associated symptoms and clinical circumstances</p>	<p>Typically, 2-3 units*per day of: A fat-free, high energy sip feed OR A high energy or energy dense sip feed (with or without fibre) OR A high energy or energy dense, moderate or high protein sip feed OR A semi-elemental sip drink OR A fat free clear fluid sip feed with protein OR other product as prescribed for specific indications (such as glucose control, gastrointestinal</p>	<p>Typically, 1-2 litres per day of: A standard lactose-free enteral feed (with or without fibre) OR A high energy enteral feed (with or without fibre) OR A high energy or energy dense, moderate or high protein enteral feed (with or without fibre) OR An immune-modulatory feed OR A feed for oncology patients OR other product as prescribed for specific</p>	<p>Typically, 1-2 litres per day of: A standard, lactose free enteral feed (with or without fibre) OR A high energy enteral feed (with or without fibre) OR A high energy, moderate or energy dense, moderate or high protein enteral feed (with or without fibre) OR other product as prescribed for specific indications (such as glucose control, gastrointestinal symptoms or</p>	<p>Typically, 2-3 units* per day of: A fat-free, high energy sip feed OR A high energy or energy dense sip feed (with or without fibre) OR A high, energy, moderate or high protein sip feed OR A fat free clear fluid sip feed with protein OR A low electrolyte sip feed OR other product as prescribed for specific indications (such as</p>	<p>Typically, 2-3 units* per day of: A high fat, high energy sip feed OR A high protein sip feed (with or without fibre) OR A low electrolyte sip feed OR A fat free clear fluid sip feed with protein OR other product as prescribed for specific indications (such as glucose control, gastrointestinal symptoms or other organ</p>	<p>Typically, 2-3 units* per day of: A high energy or energy dense sip feed (with or without fibre) OR A low electrolyte, low mineral sip feed OR A fat free clear fluid sip feed with protein OR A protein-restricted sip feed OR other product as prescribed for specific indications (such as glucose control, gastrointestinal symptoms or other organ dysfunction) by a dietitian OR An equivalent powdered</p>	<p>Typically, 2-3 units* per day of: A fat-free, high energy sip feed OR A high energy or energy dense sip feed OR A high energy, moderate or high protein sip feed (with or without fibre) OR A low electrolyte sip feed OR A fat free clear fluid sip feed with protein OR A semi-elemental sip drink OR other product as prescribed for specific indications (such as glucose control, gastrointestinal symptoms or other</p>	<p>Typically, 2-3 units* per day of: A fat-free, high energy sip feed OR A high energy or energy dense sip feed (with or without fibre) OR A high energy, moderate or high protein sip feed OR A semi-elemental sip drink OR A fat free clear fluid sip feed with protein OR other product as prescribed for specific indications (such as glucose control, gastrointestinal symptoms or other organ</p>
--	--	---	--	--	--	---	---	---

	<p>symptoms or other organ dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)# AND An L-glutamine supplement may be added to any abovementioned product</p>	<p>indications (such as glucose control, gastrointestinal symptoms or other organ dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)# AND An L-glutamine supplement may be added to any abovementioned product</p>	<p>other organ dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>	<p>glucose control, gastrointestinal symptoms or other organ dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>	<p>dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>	<p>nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>	<p>organ dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>	<p>dysfunction) by a dietitian OR An equivalent powdered nutritionally complete medical nutrition supplement (food for special medical purposes)#</p>
<p>* a unit is equivalent to 1 ready-to-drink pack or 125-250ml of equivalent reconstituted powdered product delivering similar nutritional value</p>								
<p>PMB consults with dietitian*</p>	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient (management of nutrition support, review for continued indication for and risk-benefit assessment of 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient (management of 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient (management of 	<ul style="list-style-type: none"> • 3-7 times a week while in hospital • 1-2 per month as out-patient (management of 	

	nutrition support and symptom management, and to provide relevant information to global care plan)	(management of nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan)	(management of nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan)	(management of nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan)	nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan) (Toigo, <i>et al</i> , 2000a, Toigo, <i>et al</i> , 2000b).	nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan) (Plauth, Cabré, Riggio, Assis-Camilo, Pirlich, Kondrup, DGEM (German Society for Nutritional Medicine), Ferenci, Holm, Vom Dahl, Müller, Nolte & ESPEN (European Society for Parenteral and Enteral Nutrition), 2006).	nutrition support, review for continued indication for and risk-benefit assessment of nutrition support and symptom management, and to provide relevant information to global care plan)
End-of-life care							
Nutrition Support PMB	On a case basis, enteral nutrition (tube-feeding) <i>already previously in place</i> may be continued until the end of life according to patient	On a case basis, enteral nutrition (tube-feeding)	None	None	None	None	None

	wishes and symptoms	<i>already previously in place</i> may be continued until the end of life according to patient wishes and symptoms					
Nutrition Products to be provided as part of PMB	None, unless above applies to selected cases (Arends, <i>et al</i> , 2017a, Arends, <i>et al</i> , 2017b).	None, unless above applies to selected cases (Burgos, Bretón, Cereda, Desport, Dziewas, Genton, Gomes, Jésus, Leischker, Muscaritoli, Poulia, Preiser, Van der Marck, Wirth, Singer & Bischoff, 2017).	None	None	None	None	None
PMB out-patient consults with dietitian	1						

where commercial, ready-to-use sip or enteral feeds are substituted for powdered commercial oral supplements, it is essential that the powdered substitute be a nutritionally complete medical nutrition supplement (food for special medical purposes or food for special dietary purposes) containing a full range of micronutrients prescribed by a dietitian.

* dietetic consults range in duration. Initial, detailed consults involving comprehensive assessment and interventions are 45 minutes in duration, while subsequent consultations for monitoring and follow-up purposes are shorter (between 10 to 30 minutes) in duration.

This guideline is due for update on 31 March 2020

13. References

- Aaldriks, A.A., van der Geest, L.G., Giltay, E.J., le Cessie, S., Portielje, J.E., Tanis, B.C., Nortier, J.W. & Maartense, E. (2013). Frailty and malnutrition predictive of mortality risk in older patients with advanced colorectal cancer receiving chemotherapy. *Journal of Geriatric Oncology*, 4(3): 218-226.
- Arends, J., Baracos, V., Bertz, H., Bozzetti, F., Calder, P.C., Deutz, N.E.P., Erickson, N., Laviano, A., Lisanti, M.P., Lobo, D.N., McMillan, D.C., Muscaritoli, M., Ockenga, J., Pirlich, M., Strasser, F., de van der Schueren, M., Van Gossum, A., Vaupel, P. & Weimann, A. (2017a). ESPEN expert group recommendations for action against cancer related malnutrition. *Clinical Nutrition (Edinburgh, Scotland)*, 36:1187-1196.
- Arends, J., Bachmann, P., Baracos, V., Barthelemy, N., Bertz, H., Bozzetti, F., Fearon, K., Hütterer, E., Isenring, E., Kaasa, S., Krznaric, Z., Laird, B., Larsson, M., Laviano, A., Mühlebach, S., Muscaritoli, M., Oldervoll, L., Ravasco, P., Solheim, T., Strasser, F., de van der Schueren, M. & Preiser, J.C. (2017b). ESPEN guidelines on nutrition in cancer patients. *Clinical Nutrition (Edinburgh, Scotland)*, 36(1): 11-48.
- A.S.P.E.N. Board of Directors Clinical Guidelines for the Use of Parenteral and Enteral Nutrition in Adult and Pediatric Patients (2009) *JPEN Journal of Parent Enteral Nutrition*, 33(3):255-9.
- Burgos, R., Bretón, I., Cereda, E., Desport, J.C., Dziewas, R., Genton, L., Gomes, F., Jésus, P., Leischker, A., Muscaritoli, M., Poulia, K.A., Preiser, J.C., Van der Marck, M., Wirth, R., Singer, P. & Bischoff, S.C. (2017). ESPEN guideline clinical nutrition in neurology. *Clinical Nutrition (Edinburgh, Scotland)*, 36(17): 30318-7.
- Correia, M.I. & Waitzberg, D.L. (2003). The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis. *Clinical Nutrition (Edinburgh, Scotland)*, 22(3): 235-239.
- Druml, C., Ballmer, P.E., Druml, W., Oehmichen, F., Shenkin, A., Singer, P., Soeters, P., Weimann, A. & Bischoff, S.C. (2016). ESPEN guideline on ethical aspects of artificial nutrition and hydration. *Clinical Nutrition (Edinburgh, Scotland)*, 35(3):545-556.
- Filteau S, PrayGod G, Woodd SL, Friis H, Heimburger DC, Koethe JR< Kelly P, Kasonka L, Rehman AM. (2017) Nutritional status is the major factor affecting grip strength of African HIV patients before and during antiretroviral treatment. *Tropical Medicine & International Health* 22(10): 13-2-1313
- Freijer, K., Bours, M.J., Nuijten, M.J., Poley, M.J., Meijers, J.M., Halfens, R.J. & Schols, J.M. (2014b). The economic value of enteral medical nutrition in the management of disease-related malnutrition: a systematic review. *Journal of the American Medical Directors Association*, 5(1):17-29.
- Freijer, K., Tan, S.S., Koopmanschap, M.A., Meijers, J.M., Halfens, R.J. & Nuijten, M.J. (2013a). The economic costs of disease-related malnutrition. *Clinical Nutrition (Edinburgh, Scotland)*, 32(1): 136-141.
- Fukuda, Y., Yamamoto, K., Hirao, M., Nishikawa, K., Maeda, S., Haraguchi, N., Miyake, M., Hama, N., Miyamoto, A., Ikeda, M., Nakamori, S., Sekimoto, M., Fujitani, K. & Tsujinaka, T. (2015). Prevalence of malnutrition among gastric cancer patients undergoing gastrectomy and optimal preoperative nutritional support for preventing surgical site infections. *Annals of Surgical Oncology*, 22(3):778-785.
- Gellrich, N.C., Handschel, J., Holtmann, H. & Kruskemper, G. (2015). Oral cancer malnutrition impacts weight and quality of life. *Nutrients*, 7(4): 2145-2160.
- Jensen, G.L., Compher, C., Sullivan, D.H. & Mullin, G.E. (2013). Recognizing Malnutrition in Adults: Definitions and Characteristics, Screening, Assessment, and Team Approach. *Journal of Parenteral and Enteral Nutrition*, 37(6): 802-807.
- Lacey, K. & Pritchett, E. (2003). Nutrition Care Process and Model: ADA adopts road map to quality care and outcomes management. *Journal of the American Dietetic Association*, 103(8): 1061-1072.

- Laviano A, Di Lazzaro G, Giraldo G, Koverech A. (2016) Does nutrition support have a role in managing cancer cachexia? *Current opinion in supportive and palliative care*, 10(4): 288-292
- Lee, R.D. & Nieman, D.C. (2003). *Nutritional Assessment*. 3rd ed. Boston, MA: McGraw Hill.
- Maasberg, S., Knappe-Drzikova, B., Vonderbeck, D., Jann, H., Weylandt, K.H., Grieser, C., Pascher, A., Schefold, J.C., Pavel, M., Wiedenmann, B., Sturm, A. & Pape, U.F. (2017). Malnutrition predicts clinical outcome in patients with neuroendocrine neoplasias. *Neuroendocrinology*, 104(1): 11-25.
- Mahan, L.K., Escott-Stump, S. & Raymond, J.L. (2012). *Krause's Food and the Nutrition Care Process*. 13th ed. St. Louis, Missouri: Elsevier/Saunders.
- Martin, L., Senesse, P., Gioulbasanis, I., Antoun, S., Bozzetti, F., Deans, C., Strasser, F., Thoresen, L., Jagoe, R.T., Chasen, M., Lundholm, K., Bosaeus, I., Fearon, K.H., & Baracos, V.E. (2015). Diagnostic criteria for the classification of cancer-associated weight loss. *Journal of Clinical Oncology*, 33(1): 90-99.
- Norman, K., Pichard, C., Lochs, H. & Pirlich, M. (2008). Prognostic Impact of Disease-related malnutrition *Clinical Nutrition (Edinburgh, Scotland)*, 27(1):5-15.
- Plauth, M., Cabré, E., Riggio, O., Assis-Camilo, M., Pirlich, M., Kondrup, J., DGEM (German Society for Nutritional Medicine), Ferenci, P., Holm, E., Vom Dahl, S., Müller, M.J., Nolte, W. & ESPEN (European Society for Parenteral and Enteral Nutrition). (2006). ESPEN Guidelines on Enteral Nutrition: Liver disease. *Clinical Nutrition (Edinburgh, Scotland)*, 25(2): 285–294.
- Pressoir, M., Desné, S., Berchery, D., Rossignol, G., Poiree, B., Meslier, M., Traversier, S., Vittot, M., Simon, M., Gekiere, J.P., Meuric, J., Serot, F., Falewee, M.N., Rodrigues, I., Senesse, P., Vasson, M.P., Chelle, F., Maget, B., Antoun, S. & Bachmann, P. (2010). Prevalence, risk factors and clinical implications of malnutrition in French Comprehensive Cancer Centres. *British Journal of Cancer*, 102(6): 966-971.
- Shpata, V., Prendushi, X., Kreka, M., Kola, I., Kurti, F. & Ohri, I. (2014). Malnutrition at the Time of Surgery Affects Negatively the Clinical Outcome of Critically Ill Patients with Gastrointestinal Cancer. *Medical Archives*, 68(4): 263-267.
- Skipper, Annalynn (2009). *Advanced Medical Nutrition Therapy Practice*. Jones & Bartlett Learning. p. 50. ISBN 9780763742898.
- Toigo, G., Aparicio, M., Attman, P.O., Cano, N., Cianciaruso, B., Engel, B., Fouque, D., Heidland, A., Teplan, V. & Wanner, C. (2000a). Expert Working Group report on nutrition in adult patients with renal insufficiency (part 1 of 2). *Clinical Nutrition (Edinburgh, Scotland)*, 19(3): 197–207.
- Toigo, G., Aparicio, M., Attman, P.O., Cano, N., Cianciaruso, B., Engel, B., Fouque, D., Heidland, A., Teplan, V. & Wanner, C. (2000b). Expert Working Group report on nutrition in adult patients with renal insufficiency (part 2 of 2). *Clinical Nutrition (Edinburgh, Scotland)*, 19(4): 281-291.
- Volkert, D., Chourdakis, M., Faxen-Irving, G., Frühwald, T., Landi, F., Suominen, M.H., Vandewoude, M., Wirth, R. & Schneider, S.M. (2015). ESPEN guidelines on nutrition in dementia. *Clinical Nutrition (Edinburgh, Scotland)*, 34(6):1052-1073.