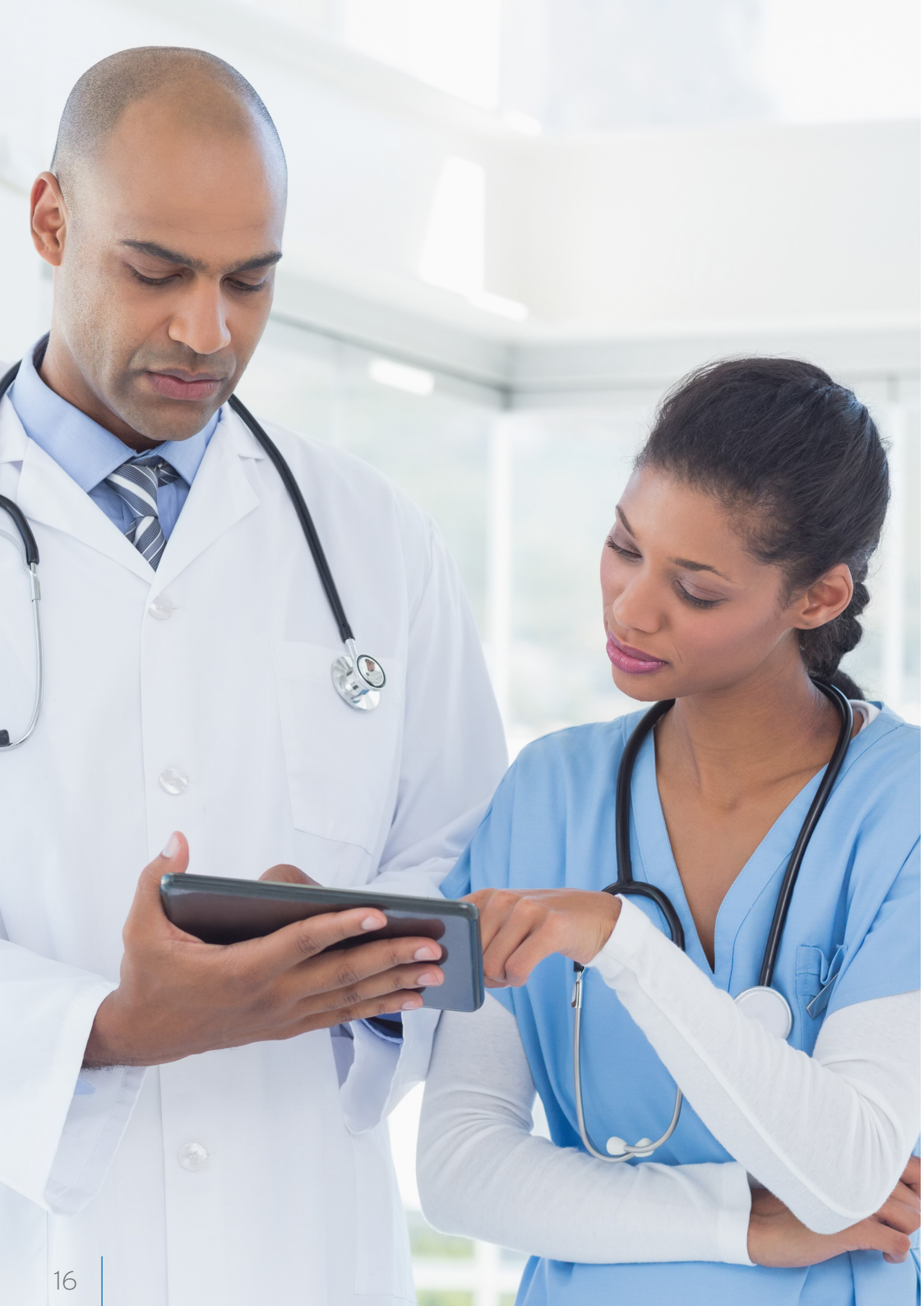

Assessment

Assessment is the second step of an efficient nutritional management. It is a detailed, more specific and in-depth evaluation of the causes of malnutrition and the risk factors for nutrition and fluid deficiency.

Step 2

The assessment should be performed by a nutritional expert (e.g. a dietician, a clinician interested in nutrition, or a nutrition nurse specialist) or by a nutritional support team.

The completion of the assessment allows patient-tailored interventions contributing to a better outcome of the patient.

What are the causes and risk factors of malnutrition?

Risk factors of malnutrition and patient related actions

Assessement is a detailed examination of the risk factors and causes of malnutrition considering, e.g. underlying diseases and possible side-effects. It includes the evaluation or measurement of general risk factors of malnutrition, social and psycho-social risk factors, nutrition related risk factors, and, where appropriate, laboratory investigations (e.g. blood parameters).

The following table gives you an overview about risk factors of malnutrition and respective examples of patient related actions for a successful patient-tailored intervention.

Disease and treatment related risk factors	**Patient related actions**
☒ Nausea/vomiting	e.g. check for medication, check of underlying gastrointestinal disorders, ask for aversions against food, consider antiemetics and prokinetic drugs
☒ Taste and smell disorder	e.g. improve taste with additional flavours and/or herbs, ask for favourite dishes and dislikes
☐ Poor appetite	*e.g. ask for favourite dishes, provide small and several meals during the day*
☐ Chewing and/or swallowing problems	*e.g. check for the right position of the patient, adaption of the consistency of the food (e.g. to thicken food), refer for swallow therapy*
☐ Dryness of the mouth	*e.g. check and improve mouth care, ensure necessary dental treatment, give foods with a high water content, try the provision of peppermint tea to stimulate salivary flow*
☐ Dehydration	*e.g. evaluate fluid requirement and intake, ensure sufficient fluid intake (e.g. by daily fluid protocol)*
☐ Pain	*e.g. define actions to reduce pain, consider analgesics*
☐ Mucositis with ulcerations	*e.g. careful oral hygiene, treatment of ulceration, glutamine supplementation*
☐ Gastrointestinal dysfunction/impairment	*e.g. treatment of disease, according to cause, consider peptide-based and/or MCT-containing formula*
☒ Diarrhoea	e.g. check for food intolerances and gastrointestinal disorder, check for side effects of medication and consider change of drug
☐ Constipation	*e.g. check fluid intake (e.g. by fluid protocol), consider fibre-containing feeds*
☐ Dementia/cognitive decline	*e.g. adequate feeding assisstance to increase food intake*
☐ Impaired functional abilty	*e.g. adequate feeding assisstance, refer to occupational therapy, try feeding aids*
☐ Chronic disease	*e.g. treatment of underlying disease, consider the increase of energy and protein intake*
☐ Acute disease	*e.g. adequate treatment of disease*
☒ Acute infections	e.g. adequate treatment of infection
☐ Fever	*e.g. ensure sufficient fluid intake (e.g. by daily fluid protocol), antifebrile actions*
☐ Increased needs	*e.g. define a nutrition therapy high in energy and protein according to patients requirements (→ Step 3)*
☐ Dialysis	*e.g. consider special diet*
☐ Special medication	*e.g. check medication for side effects and consider drug adaptation*
☐ Others:	
Social and psycho-social risk factors	**Patient related actions**
☒ Anxiety/depression	e.g. implement psychotherapeutic care
☐ Social isolation	*e.g. patient feeding assistance, continous invitation to eat (in company, if possible)*
☐ Others:	
Nutrition related risk factors	**Patient related actions**
☒ Food allergies/intolerances	e.g. provide alternative foods/diets
☐ Special forms of nutrition (e.g. vegetarian, vegan)	*e.g. ask for favourite dishes and provide alternative foods*
☐ Restrictive diets	*e.g. stop restrictive diet and weight reducing during disease*
☐ Social/cultural requirements and habits	*e.g. ask for traditional foods and cultural restrictions and consider the provision of feasable alternatives, ask for favorite dishes*
☐ Others:	

Blood parameters

Laboratory testing of different blood parameters may be useful to assess the patients nutrition status, to monitor substrate utilisation and control nutrition therapy adequacy, or to quantify inflammation and disease severity.

In patients nutritionally at risk, blood parameters should be controlled routinely. However, the feasibility to measure specific laboratory parameters strongly depends on the clinical setting you work in. Furthermore, it is important to interpret laboratory parameters taken adequately: e.g. serum albumin is more likely to be a measure of disease severity than of malnutrition per se and therefore it is often not included in the standard monitoring. In this context the following chapter only gives you a selection of blood parameters which might be helpful.

Nutrition experts for example, recommend to measure hemoglobin, sodium, potassium, creatinine, blood urea nitrogen, magnesium, calcium, phosphate and blood sugar, at least once a week and more regularly in acutely ill patients. In severely malnourished patients it may be necessary to measure potassium, magnesium and phosphate daily for the first 3 days or until stable, and then 2x weekly to monitor utilisation and detect refeeding syndrome as early as possible.

In patients on parenteral nutrition also the measurement of alkaline phosphatase, bilirubin and alanine aminotransferase (ALT) might be appropriate.

Further parameters often measured in clinical routine are described in detail below:

Blood parameter	**Normal range[1]**	**Half life[1]**
Albumin (g/dl)	3.5 – 5.0	18 – 20 days
Transferrin (mg/dl)	200 – 350	8 – 10 days
Pre-albumin (mg/dl)	20 – 40	2 – 3 days

Albumin*

A tracking parameter for long-term interventions; direct negative correlation with mortality and rate of complications; also low in liver function disorders, postaggression metabolism, proteinuric nephropathy, protein-losing enteropathy.

Transferrin

A tracking parameter for short-term interventions; no clear correlation with outcome; also low in anaemia, liver diseases and certain antibiotic therapies. Transferrin may be a better and more sensitive reflection of nutritional status compared to albumin.

Pre-albumin*

A tracking parameter for short-term monitoring of nutritional interventions.

*Both albumin and pre-albumin have been shown to be poor markers of nutritional status and should be interpreted with caution.[1]

Please note:
The longer the half life of a blood parameter, the longer it takes to manifest metabolic effects

Sources:

1 Lee JL et al. Serum Albumin and Prealbumin in Calorically Restricted, Nondiseased Individuals: A Systematic Review. Am J Med. 2015 Sep;128(9):1023.e1-22

Assessment of food and fluid intake

The food intake of many patients deteriorates during treatment or during a stay in a hospital or nursing home. The best way to identify patients at risk of malnutrition is to record their intake of foods and fluids - from admission to discharge.

The Food & Fluid protocol is the basis to determine the optimal nutrition therapy plan of the patient. It is part of the Assessment (Step 2) as a 3 day review of food intake and part of a regularly documentation of the nutritional status during Monitoring (Step 3) to be used for daily monitoring.

Food protocol – Is your patient eating enough?

The food protocol helps to record the intake of a patient, indicating the proportion of a meal that has been eaten (100 %, 75 %, 50 %, 25 %, 0 %; corresponding to 4, 3, 2, 1, 0 quarters of a plate).
The Food protocol helps to document and to control the food intake of the patient to be able to define the nutrition therapy plan (Step 3) by calculating the needed nutritional supplementation.

		Assessment			Monitoring	
		3 days review of food intake			1	2
	Date	22.8.12	23.8.12	24.8.12		
350	Breakfast kcal*					
	Signature	Mc	Mc	Mc		
600	Lunch kcal*					
	Signature	Fox	Fox	Fox		
450	Dinner kcal*					
	Signature					
à 150	Snack 1+2 kcal*					
	Signature					
à 150	Snack 3+4 kcal*					
	Signature					
2000	Estimation of provided energy via food per day kcal*					
TOTAL = intake via food	Energy (kcal)*	1000	1200			
	Protein (g)**					
	ONS intake (No. of bottles, kcal)		2/300			
	Tube feed intake (No. of bags, kcal)					
	Total energy intake (kcal)	1000	1800			
	Parenteral nutrition, amino acids intake (g)					
	Total protein intake (g)**					
	Signature	Smth	Mc			

*average energy content of provided menus during hospital stay (Breakfast, lunch, dinner and snacks) as given by the kitchen
** estimation of daily protein intake (high = H, medium = M, low = L); to be surveyed if possible.

Fluid protocol – Is your patient drinking enough?

The fluid protocol helps to record the daily fluid intake of a patient, indicating the amount of fluid which is consumed over the whole day per os, food, ONS, tube feeding and/ or parenteral nutrition. The Fluid protocol helps to document and to control the fluid intake of the patient to be able to define the nutrition therapy plan (Step 3) by calculating the needed fluid substitution of the patient.

	Date	22.8.	23.8.	24.8.					
150 ml Cup	Morning ml	150	150						
	ml	150	150						
	ml	200							
	ml								
200 ml Glass/ bowl	Afternoon ml	200	200						
	ml	200	200						
	ml	150							
	ml								
	Evening ml	200	200						
	ml		200						
	Fluid intake via os (ml)	1250	1100						
+	Water content of food* (0.33 ml/kcal) (ml)	330	200						
+	Water content of ONS and/or tube feed** (ml)	100	100						
+	Water content of parenteral/infusion solution** (ml)	-	-						
=	**Total fluid intake (ml)**	1680	1400						

* Based on total energy intake (p. 20).
** Please find the water content on the product label.

Please note: Further details on calculation of fluid substitution are given on page 27.