



LE SCELTE FACILI IN NUTRIZIONE ARTIFICIALE: COSA NON FARE

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COLLABORATIVE PROBLEM SOLVING IN NUTRIZIONE CLINICA

Giornate catanesi di nutrizione clinica VI edizione



Con il patrocinio di

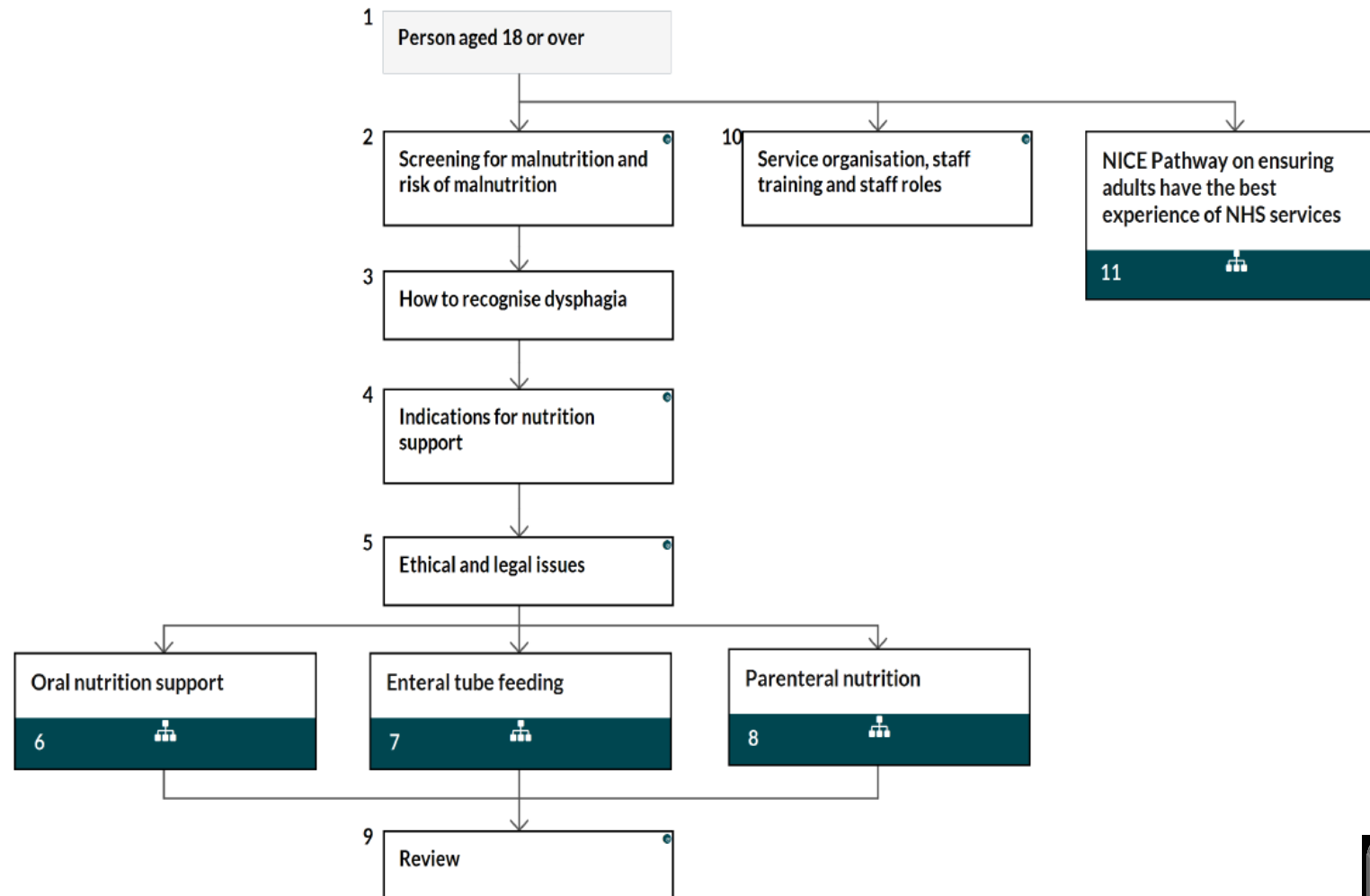


Università
di Catania



23-24 Giugno 2022

 Casa la Carrubazza
Via Raffaello Sanzio, 38 - San Gregorio di Catania (CT)



4 Indications for nutrition support

Nutrition support should be considered in people who are malnourished, as defined by any of the following:

- a BMI of less than 18.5 kg/m^2
- unintentional weight loss greater than 10% within the last 3–6 months
- a BMI of less than 20 kg/m^2 and unintentional weight loss greater than 5% within the last 3–6 months.

Nutrition support should be considered in people at risk of malnutrition who, as defined by any of the following:

- have eaten little or nothing for more than 5 days and/or are likely to eat little or nothing for the next 5 days or longer
- have a poor absorptive capacity, and/or have high nutrient losses and/or have increased nutritional needs from causes such as catabolism.

stato
nutrizionale

stato
metabolico

apporto
orale

CONSENSO INFORMATO

INDICAZIONI ALLA N.A.



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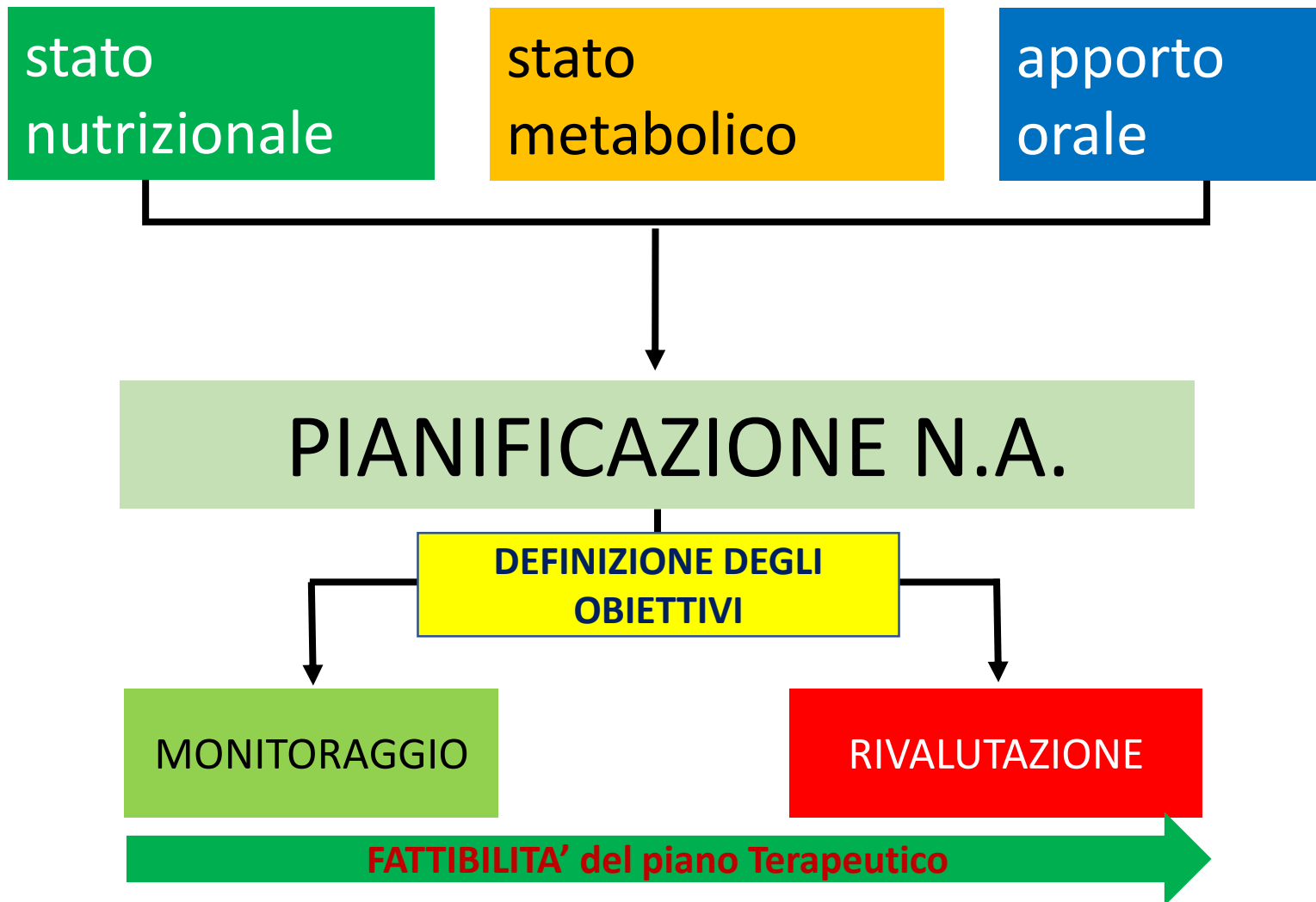
apporto
orale

CONSENSO INFORMATO

INDICAZIONI ALLA N.A.

Via di
somministrazione

Apporti/Richieste
En e proteiche



Case report 1

- Paziente in RSA affetto da demenza, anni 85
- Viene riferito che non si alimenta a sufficienza
- Calo ponderale 15% in circa 3 mesi (cm 165 x 50 KG, BMI 18,5 Kg/m²)
- Puntate febbrili saltuarie
- Na 160 mEq/L, K 4,0 mEq/L, Cl 110 mEq/L
- Creatininemia 2,1 mg/dl

Case report 1

- Malnutrizione da apporto alimentare insufficiente
- Vengono prescritti integratori per insufficienza renale da assumere alla dose di 1-2 flaconi al giorno a piccoli sorsi.
- Antibioticoterapia

Manca qualcosa?

Case report 1

- Malnutrizione da apporto alimentare insufficiente
- Vengono prescritti integratori per insufficienza renale da assumere alla dose di 1-2 flaconi al giorno a piccoli sorsi.
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Disfagia?



Step 3. Treat: oral

Malnourished or at risk

check for dysphagia

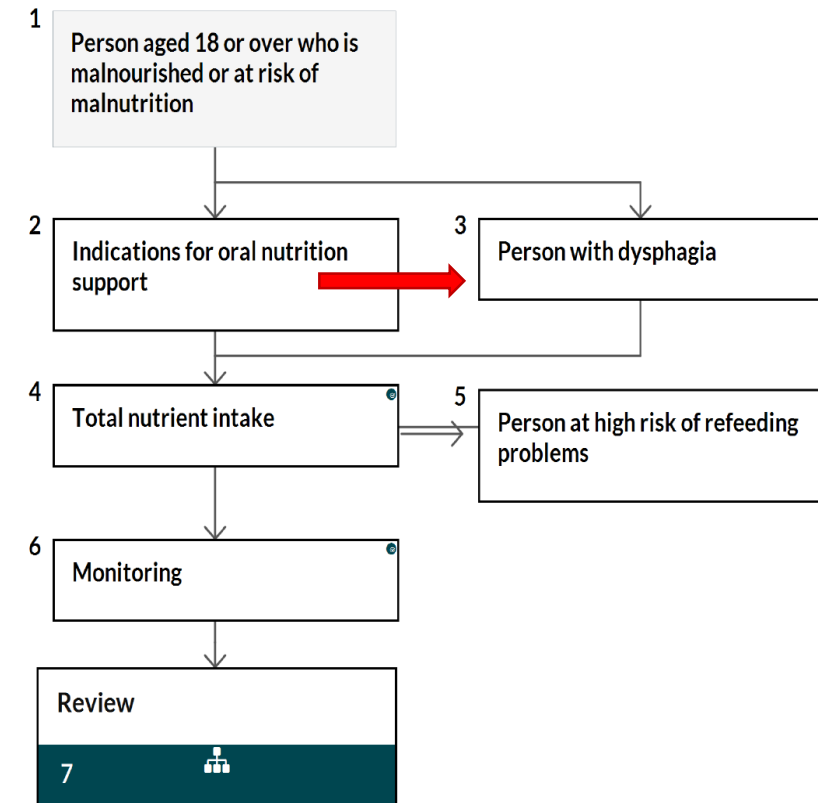
Dysphagia

Obvious indicators of dysphagia

Difficult, painful chewing or swallowing
Regurgitation of undigested food
Difficulty controlling food or liquid in the mouth
Drooling
Hoarse voice
Coughing or choking before, during or after swallowing
Globus sensation
Nasal regurgitation
Feeling of obstruction
Unintentional weight loss – for example, in people with dementia

Less obvious indicators of dysphagia

Change in respiration pattern
Unexplained temperature spikes
Wet voice quality
Tongue fasciculation (may be indicative of motor neurone disease)
Xerostomia
Heartburn
Change in eating – for example, eating slowly or avoiding social occasions
Frequent throat clearing
Recurrent chest infections
Atypical chest pain



Fiberoptic Evaluation of Swallowing (FEES) VideoFluoroScopia (VFS)



Step 3. Treat: oral

Malnourished or at risk

check for dysphagia

Dysphagia

If dysphagia is present

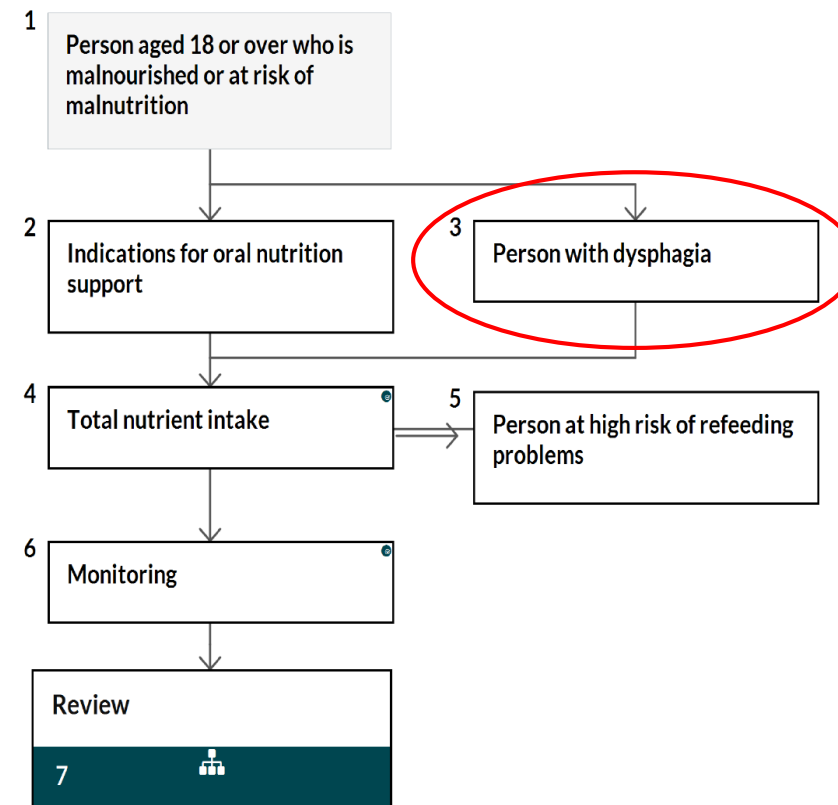
Consider the risks and benefits of modified oral nutrition support and/or enteral tube feeding.

D(GPP)

Before modification of nutrition support and hydration consider: recurrent chest infections; mobility; dependency on others for assistance to eat; perceived palatability and appearance of food or drink; level of alertness; compromised physiology; poor oral hygiene; compromised medical status; metabolic and nutritional requirements; vulnerability (for example, immunocompromised); comorbidities. D(GPP)

For people in the acute setting with inadequate or unsafe oral intake consider a 2–4 week trial of nasogastric enteral tube feeding. A For more on enteral tube feeding see page 13.

Check that drug formulation, route and timing is appropriate and without contraindications for the feeding regimen or swallowing process. D(GPP)



- Stop oral nutrition support when adequate oral intake from normal food is established. D(GPP)

Step 3. Treat: oral

Malnourished or at risk

check for dysphagia

Dysphagia

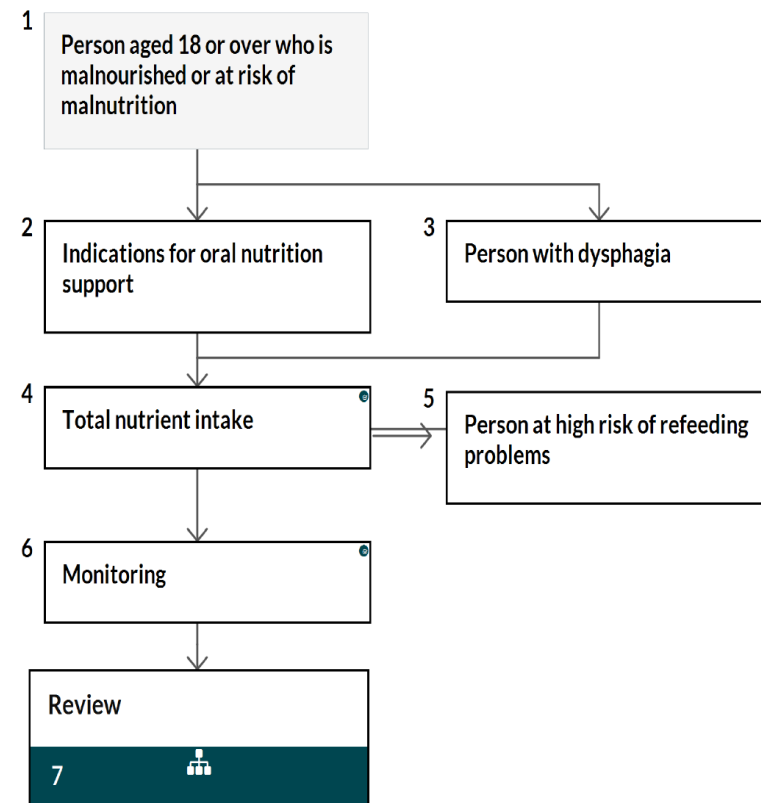
safe to swallow

consider oral nutrition support.⁵ A

Provide:

- food and fluid of adequate quantity and quality in an environment conducive to eating
- appropriate support, for example modified eating aids, for people who can potentially chew and swallow but are unable to feed themselves. **D(GPP)**
- Ensure that the overall nutrient intake contains a balanced mixture of protein, energy, fibre, electrolytes, vitamins and minerals. **D(GPP)**
- Offer a complete oral multivitamin and mineral supplement if concerned about intake. **D(GPP)**

- Stop oral nutrition support when adequate oral intake from normal food is established. **D(GPP)**



Case report 2

- Paziente di anni 65 neoplasia laringea sottoposto ad intervento radicale, in attesa di chemio/rxterapia.
- Altezza cm 175, peso attuale Kg 58 (BMI 19 Kg/m²)
- Calo ponderale in 3 mesi da 74 kg a Kg 58 (-21,6%)
- Portatore di cannula tracheostomica
- Malnutrizione di grado moderato-grave, disfagia
- Portatore di CVC (PICC) per sottoporsi a ciclo di chemioterapia

Case report 2

Presenza di CVC :Nutrizione Parenterale Totale

- Volume ml 2000
- 2030 Kcal totali,
- 11,2 g di azoto (70 g di proteine)
- Somministrazione in 20 ore 100 ml/h mediante nutripompa in CVC
- Terapia nutrizionale suggerita anche per il domicilio



Siete d'accordo?

Indicazioni alla nutrizione enterale

2 Indications for enteral tube feeding

Healthcare professionals should consider enteral tube feeding in people who are malnourished or at risk of malnutrition, respectively, as defined in indications for nutrition support, and have:

- inadequate or unsafe oral intake, and
- a functional, accessible gastrointestinal tract.

Enteral tube feeding should not be given to people unless they meet the criteria above, or they are taking part in a clinical trial.

Enteral tube feeding should be stopped when the patient is established on adequate oral intake.

Indicazioni alla nutrizione parenterale

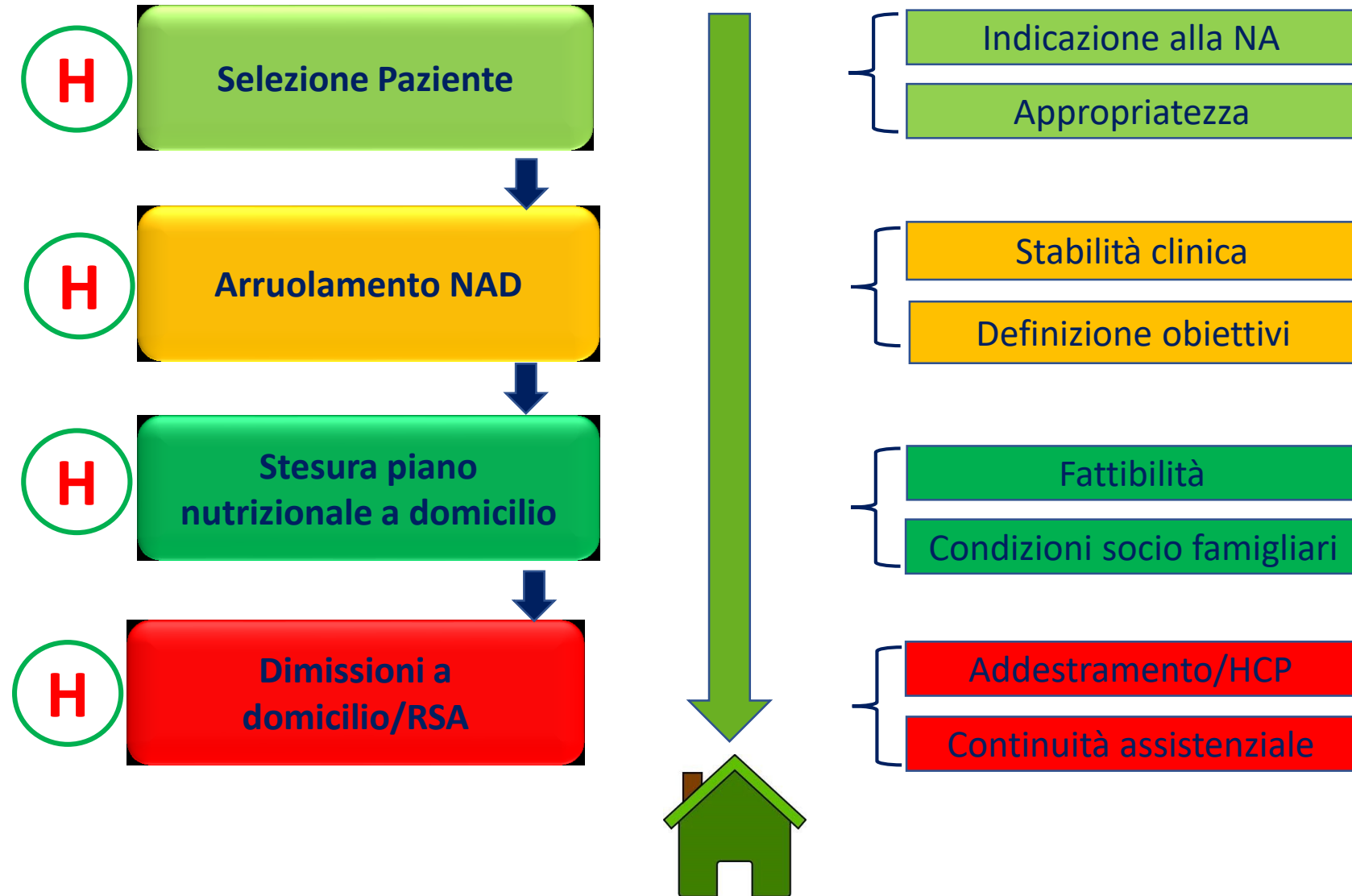
2 Indications for parenteral nutrition

Healthcare professionals should consider parenteral nutrition in people who are malnourished or at risk of malnutrition, respectively, as defined in indications for nutrition support, and meet either of the following criteria:

- inadequate or unsafe oral and/or enteral nutritional intake
- a non-functional, inaccessible or perforated (leaking) gastrointestinal tract.

Parenteral nutrition should be stopped when the patient is established on adequate oral and/or enteral support. There is no minimum length of time for the duration of parenteral nutrition.

Il Processo della NAD: Ospedale-territorio



Case Report 3

- Femmina, 30 anni sottoposta a by pass gastrico per grave obesità (BMI 60,9 Kg/m²).
- Nei successivi 4 mesi dall'intervento si registra un calo ponderale di 35 Kg (BMI: 48,4 Kg/m²).
- 15 giorni prima del ricovero in ospedale presenta malessere generale, vomito postprandiale, febbre ed episodi di diarrea, e riesce ad assumere solo liquidi o piccoli supplementi energetici.
- A seguito di tale sintomatologia si reca in PS

Case Report 3

- Deplezione idrosalina
- PA : 110/70 , HR: 110/min., RR : 26 /min.
- EGA(fiO₂:0,21): pH 7,50, paO₂ 100 mmHg, pCO₂ 28 mmHg, SaO₂99%.
- Hb 15g/dl, GR 5.320.000, GB 12.000 mm,Ht: 54%
- Rx Torace: ndn
- ECG: tachicardia sinusale, alterazioni aspecifiche della fase di ripolarizzazione
- Azotemia: 60 mg/dl , Creatininemia 1,9 mg/dl
- Na:155 mmol/l, K: 3,1 mmol, P: nella norma, Folati:10,2 μmol/L (vn:>12,2 mmol/L), Fe: 5μMol/L (vn:6-30Mol/L)

Case Report 3

Trattamento nelle prime 24 ore

- Soluzione salina NaCl 0,9: 2500 ml
- Dieta enterale (vomito cessato): 1000 ml miscela standard con apporto energetico di 1000 Kcal/24 ore
- Infusione di K :35 mmol/24 h
- Infusione di P come fostato: 24 mmol/24 ore
- Folati e ferro per os. (i valori erano inferiori alla norma).

Case Report 3

Dopo circa 10 ore:

- Tachipnea (35 RR)
- Tachicardia 128 bpm
- PA: 85/55 mmHg
- Decubito obbligato
- Edemi declivi
- Rx Torace: edema polmonare, cardiomegalia
- EGA: pH 7,22 pCO₂: 30 mmHg, pO₂: 75 mmHg, SaO₂ 80%
- Acidosi Lattica



Case Report 3

- Ricovero in TI grave insufficienza cardiorespiratoria

Ossigeno terapia (CPAP), diuretici, K e Fosfati in infusione

Ma si osserva limitato miglioramento (?)

- K: **2,2** mmol/L
- Fosfati: **0,68** mmol/L

Abbiamo dimenticato qualcosa?

Case Report 3

- Ricovero in TI grave insufficienza cardiorespiratoria

Il giorno seguente, in seguito a consulenza NST, viene prescritta anche **Tiamina** (300mg/die) e nutrizione enterale 1500 Kcal/24 h.

Dopo 4 ore di infusione di tiamina si osserva miglioramento e recupero della funzione cardiaca e risoluzione della acidosi lattica.

Dopo lo svezzamento dalla NE l'alimentazione viene supplementata poi con ONS per 1 settimana

Dopo 2 settimane viene dimessa dall'ospedale completamente ristabilita

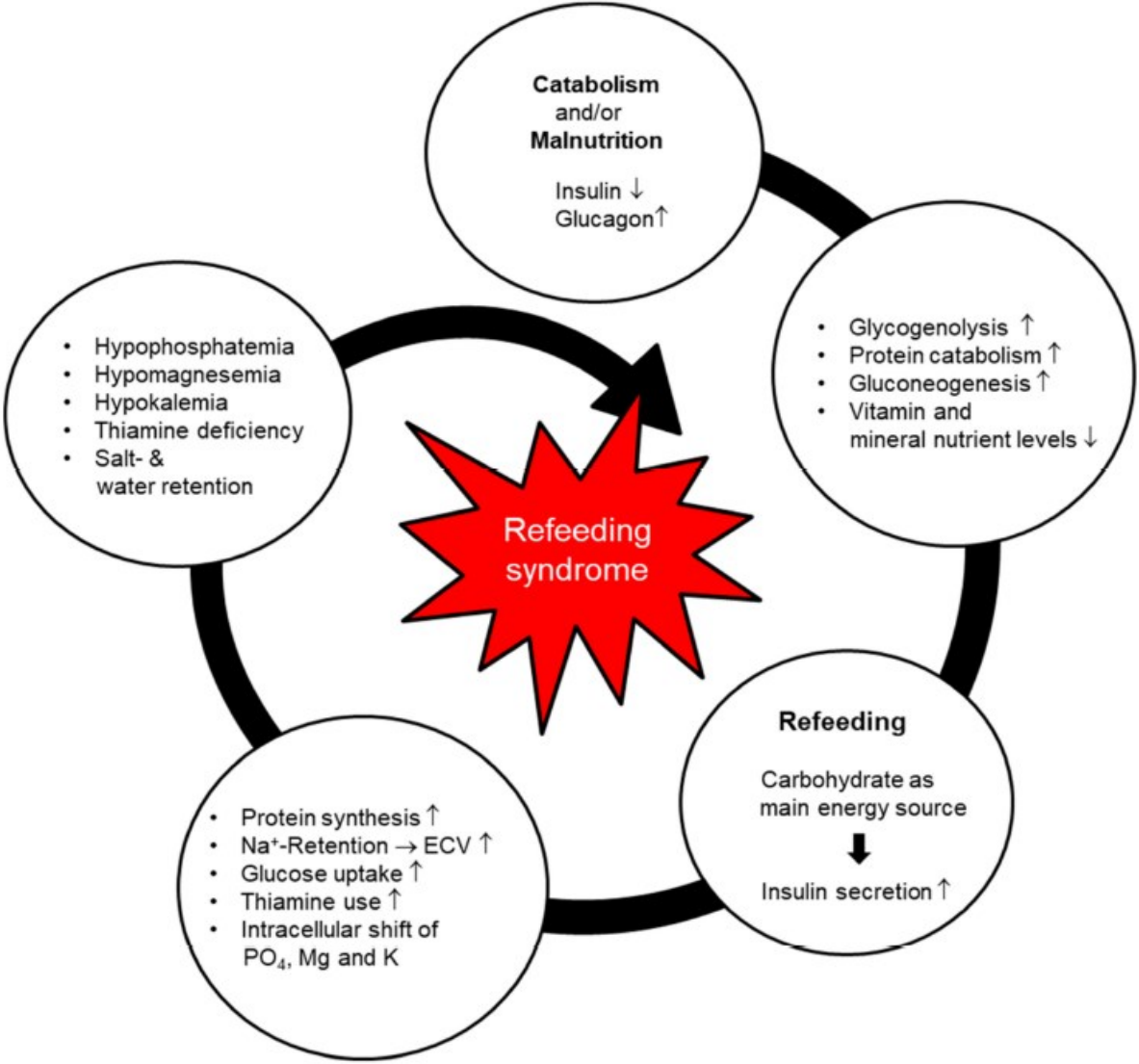
Risk of developing Refeeding Syndrome

Table 1. Clinical conditions at particular risk of developing RFS.

Clinical Conditions	
- Malnourished, catabolic patients	- Chronic wasting disease
- Geriatric patients	- Chronic pancreatitis
- Oncologic patients	- Chronic infectious disease
- Trauma patients	- Inflammatory bowel syndrome
- Critically ill patients	- Liver cirrhosis
- Hunger strikers or prolonged fasting	- Patients with dysphagia
- Short -bowel syndrome	- Patients with hemodialysis
- Bariatric surgery	- Patients with chemotherapy
- Anorexia nervosa	- Patients with chronic alcoholism
- Cystic fibrosis	- Drug dependent patients

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Pathophysiology of refeeding syndrome

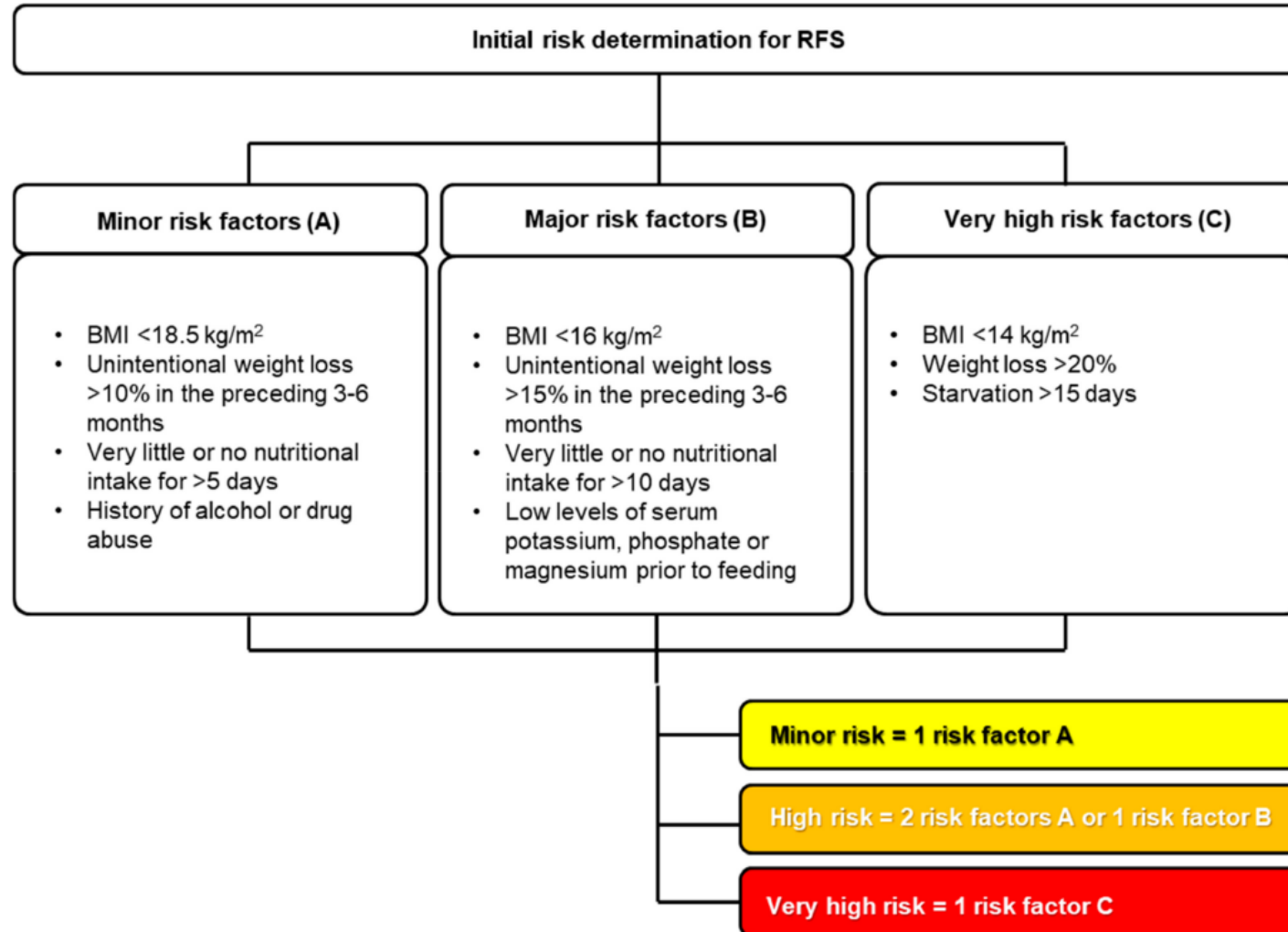


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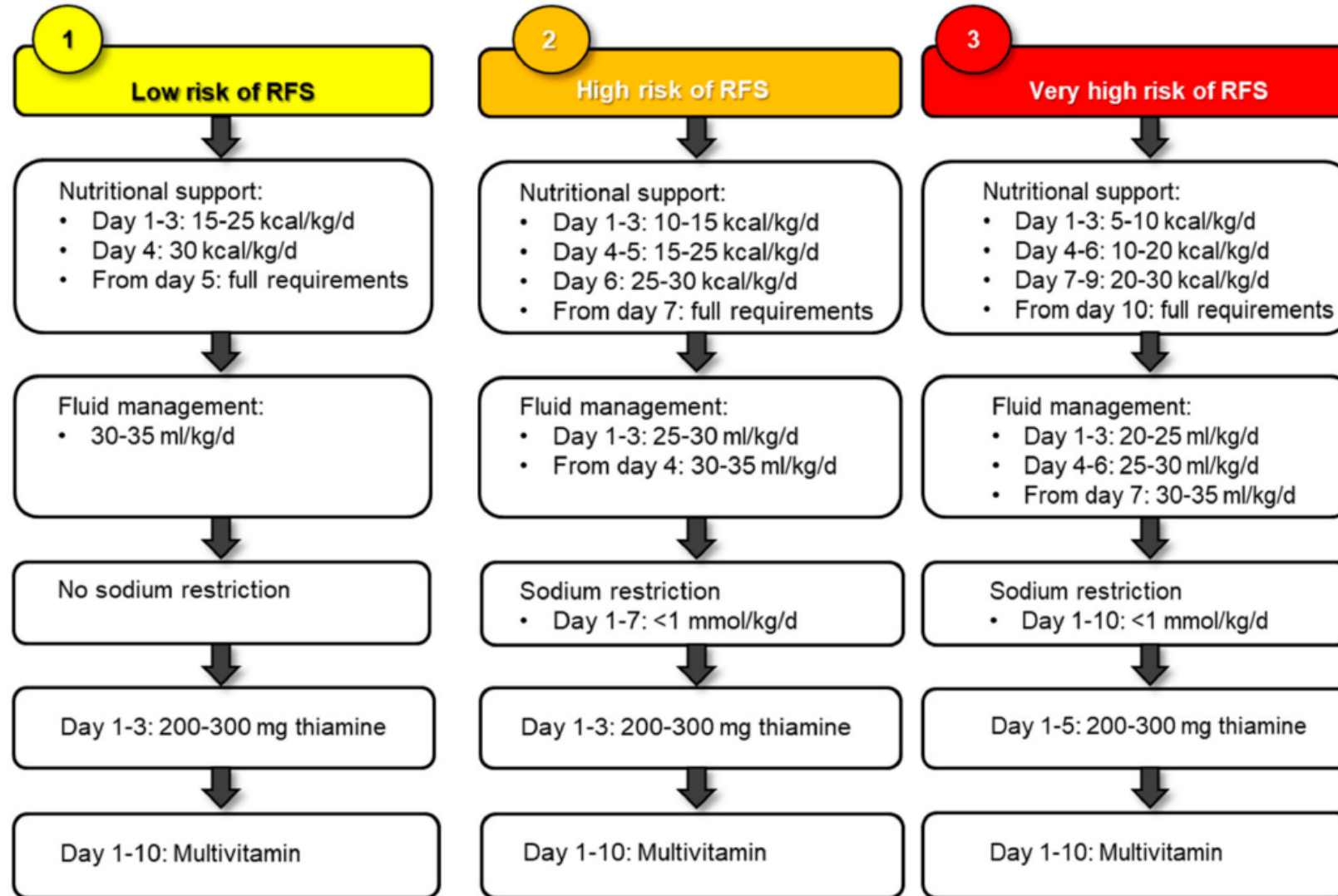
Table 2. Signs and Symptoms of Severe Refeeding Syndrome.^a

Hypophosphatemia	Hypokalemia	Hypomagnesemia	Thiamin Deficiency	Sodium Retention
Neurological	Neurological	Neurological	Encephalopathy	Fluid overload
Paresthesias	Paralysis	Weakness	Lactic acidosis	Pulmonary edema
Weakness	Weakness	Tremor	Nystagmus	Cardiac
Delirium	Cardiac	Muscle twitching	Neuropathy	decompensation
Disorientation	Arrhythmias	Changed mental status	Dementia	
Encephalopathy	Contraction changes	Tetany	Wernicke's syndrome	
Areflexic paralysis	Respiratory failure	Convulsions	Korsakoff psychosis	
Seizures	Gastrointestinal	Seizures	Wet and dry beriberi	
Coma	Nausea	Coma		
Tetany	Vomiting	Cardiac		
Cardiac	Constipation	Arrhythmias		
Hypotension	Other	Gastrointestinal		
Shock	Rhabdomyolysis	Anorexia		
Decreased stroke volume	Muscle necrosis	Nausea		
Decreased mean arterial Pressure		Vomiting		
Increased wedge pressure		Constipation		
Pulmonary				
Diaphragmatic weakness				
Respiratory failure				
Dyspnea				
Hematologic				
Hemolysis				
Thrombocytopenia				
Leukocyte dysfunction				

Risk of developing Refeeding Syndrome



Management of nutritional therapy according to the risk for RFS



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Cosa fare per evitare
La refeeding syndrome

Cosa fare per evitare ***La refeeding syndrome***

1. Pensarci...

Cosa fare per evitare

La refeeding syndrome

1. Pensarci...
2. Individuare i contesti ed i soggetti a rischio

Cosa fare per evitare

La refeeding syndrome

1. Pensarci...
2. Individuare i contesti ed i soggetti a rischio
3. Stratificare il rischio (basso,alto,molto elevato)

Cosa fare per evitare *La refeeding syndrome*

1. Pensarci...
2. Individuare i contesti ed i soggetti a rischio
3. Stratificare il rischio (basso,alto,molto elevato)
4. Trattare secondo i fattori di rischio bilancio idrosalino e terapia nutrizionale



Grazie per l'attenzione...

Risk of developing Refeeding Syndrome

Table 2. *Short Nutritional Assessment Questionnaire (SNAQ)*

Unintentional weight loss	
• More than 6 kg within the last 6 months	3 points
• More than 3 kg within the last month	2 points
Little or no nutritional intake for the last 3 days, or less than normal for the last week	1 point
Use of tube feeding or nutritional drinks in the last month	1 point
Total of 0-1 points: no risk of malnutrition. 2 points: average risk of malnutrition. 3-5 points: high risk of malnutrition. ¹⁷	

Kraaijenbrink et al. Refeeding syndrome in internal medicine patients.

The Neth J Med 2016;74;3

Risk of developing Refeeding Syndrome

Table 1. National Institute for Health and Care Excellence (NICE) criteria for determining patients at high risk of developing refeeding problems¹³

Patient has one or more of the following:

- BMI < 16 kg/m²
- Unintentional weight loss > 15% within the last 3-6 months
- Little or no nutritional intake for more than 10 days
- Low levels of phosphate, potassium or magnesium prior to feeding*

Or patient has two or more of the following:

- BMI < 18.5 kg/m²
- Unintentional weight loss > 10% within the last 3-6 months
- Little or no nutritional intake for more than 5 days
- A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

*Low electrolyte levels are not used as one of the major criteria since this is used as a hallmark to identify the occurrence of refeeding syndrome.

Kraaijenbrink et al. Refeeding syndrome in internal medicine patients.

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