

2nd EDITION



Managing Malnutrition in COPD

Including a pathway for the appropriate use of ONS to support
community healthcare professionals



www.malnutritionpathway.co.uk/copd/

2nd Edition: January 2020
1st Edition produced June 2016
(Document to be reviewed January 2023)

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Managing Adult Malnutrition in the Community panel.

Experts involved in the development of ‘Managing Adult Malnutrition in the Community’ have also been consulted on this document.

The panel members declare that they have no conflicts of interest in relation to this document. Costs of time for reviewing and printing this document were met by an unrestricted educational grant from Nutricia Advanced Medical Nutrition (www.nutricia.co.uk). The content and key messaging has been developed and agreed by the expert consensus panel. Library services were provided by Nutricia Medical Affairs department upon request.

NICE Endorsement Statement - Managing Malnutrition in COPD

This guide (www.malnutritionpathway.co.uk/copd) accurately reflects some of the recommendations on malnutrition in the **NICE** guidelines on nutrition support in adults (www.nice.org.uk/Guidance/CG32) and chronic obstructive pulmonary disease in over 16s (www.nice.org.uk/guidance/ng115). It also supports statements 1,3 and 5 in the **NICE** quality standard for nutrition support in adults (www.nice.org.uk/guidance/qs24).

This resource is intended for use with adults and not children.

National Institute for Health and Care Excellence. Renewed, December 2019

Introduction

This document is a practical guide to support healthcare professionals in the nutritional management of Chronic Obstructive Pulmonary Disease (COPD) including the identification and management of malnutrition. For further information on identifying and managing disease related malnutrition please see 'Managing Adult Malnutrition in the Community'¹ (www.malnutritionpathway.co.uk).

This document was written and agreed by a multi-professional panel with expertise and an interest in malnutrition and COPD. It is based on clinical evidence, clinical experience and accepted best practice. It is an updated version of the 'Managing Malnutrition in COPD' 2016 document.

COPD and Malnutrition Overview

Chronic Obstructive Pulmonary Disease (COPD): Facts and Figures

COPD is a progressive lung disease caused by chronic inflammation and damage to the respiratory system. This damage results in restricted airflow causing breathing difficulties. This makes COPD the second most common lung disease in the UK, after asthma². Around 2% of the whole population – 4.5% of all people aged over 40 – live with diagnosed COPD². It is estimated that 3 million people in the UK have COPD, of whom 2 million are undiagnosed³.

COPD is one of the most costly conditions treated by the NHS, with a total annual direct cost of £1.8 billion and a total overall cost (direct, indirect and intangible costs) of £48.5 billion⁴. It is the second largest cause of emergency admissions (around 130,000 admissions per year)⁵. COPD is primarily managed in the community setting and accounts for around 1.4 million GP consultations per year⁵. The UK has the 12th highest recorded deaths from COPD in the world⁶.

Malnutrition

Malnutrition can refer to under nutrition (being underweight or losing weight) or over nutrition (being overweight or obese). This document focuses primarily on the issue of under nutrition in COPD but the resources provide nutritional advice suitable for use across the spectrum of disease. It is possible to be overweight and obese and at risk of malnutrition or be malnourished. This is why routine nutritional screening is important (see pages 4-5).

Malnutrition is an imbalance of energy, protein and other nutrients that causes adverse effects on the body (shape, size and composition), the way in which it functions and clinical outcomes. Malnutrition is often associated with increased requirements for energy, protein, vitamins and minerals⁷. It is also linked to a decreased nutritional intake and weight loss⁷. Effectively managing malnutrition can bring about significant cost savings^{1,8-11}. Savings of at least £123,530 per 100,000 of the general population could be achieved by managing individuals at risk of malnutrition according to the National Institute for Health and Care Excellence (NICE) guidance¹².

The healthcare costs of managing individuals with malnutrition are three to four times greater than that of managing non-malnourished individuals, due to the higher use of healthcare resources¹¹.

In addition malnutrition in this patient group has been found to be a predictor of healthcare use, associated with significantly higher emergency hospitalisation and increased length of hospital admission, up to twice the usual duration^{13,14}.

Prevalence of Malnutrition in COPD

Around 1 in 3 inpatients¹⁴ and 1 in 5 outpatients¹⁵ with COPD are at risk of malnutrition. Malnutrition may develop gradually over several years or might develop or progress following exacerbations. Sarcopenia (loss of skeletal muscle mass and strength) affects 15% of patients with stable COPD and impairs function and health status¹⁶. About 25% of patients with COPD will develop cachexia¹⁷ (loss of lean tissue mass due to chronic illness).

Causes and Consequences of Malnutrition in COPD

The causes of malnutrition in COPD patients are varied and the consequences can further impair nutritional intake¹⁸. The consequences of malnutrition in COPD are significant and associated with poor patient outcomes and increased healthcare costs¹⁹. Low BMI and particularly low muscle mass (lean tissue) are associated with worse outcomes in people with COPD²⁰.

Causes of malnutrition in COPD	Consequences of malnutrition in COPD ^{19, 21-29}
Disease effects e.g. breathlessness, anorexia, inflammation Psychological factors e.g. motivation, apathy, depression Social factors e.g. social isolation, death of a partner, lack of practical support Environmental factors e.g. living conditions, access to shops Increased nutritional requirements e.g. energy, protein Medication: - inhaled therapy and oxygen therapy e.g. taste changes, dry mouth - frequent or prolonged use of corticosteroids adversely affecting bone density, muscle mass (lean tissue)	Increased mortality Increased healthcare costs Longer hospital stays More frequent readmissions Reduced muscle strength Reduced respiratory muscle function

Identification of Malnutrition - Nutritional Screening

- Identifying and managing malnutrition (in the general population and in individuals with COPD) can improve nutritional status⁷, clinical outcomes³⁰⁻³¹ and reduce healthcare use^{7-9,31}
- Routine nutritional risk screening with a validated screening tool should be performed in all COPD patients across all settings⁶
- NICE guidelines recommend BMI is calculated in all patients with COPD and that attention should be paid to unintentional weight loss particularly in older people⁶
- Screening should take place on first contact with a patient and/or upon clinical concern e.g. recent exacerbation, change in social or psychological status. A review should take place at least annually and more frequently if risk of malnutrition is identified³²
- It should be noted that BMI alone will not identify all patients who are at risk of malnutrition as a high BMI can mask unintentional weight loss including loss of muscle mass (lean tissue)
- NICE NG115 recommends attention is paid to changes in weight in older people, particularly if the change is more than 3 kg⁶ – such weight changes should however be taken within the context of the individuals original weight as a 3 kg weight loss in a 100 kg individual and a 45 kg individual is very different. Weight change should also be considered in terms of % change from usual weight e.g. 10% unplanned weight loss over 6 months, and in the context of time e.g. rapid daily changes can reflect fluid balance
- The Malnutrition Universal Screening Tool ('MUST')³³ is a simple 5 step screening tool that can be used across care settings to identify adults who are at risk of malnutrition (see www.bapen.org.uk/pdfs/must/must_full.pdf). It combines assessment of BMI, recent unplanned weight loss and presence of acute illness:
 - Unintentional weight loss of 5 – 10% over 3 – 6 months indicates risk of malnutrition irrespective of BMI³³
 - 'MUST' is a predictor for risk of death and readmission in patients with COPD¹⁴

Considerations

- Weight loss may be a sign of other conditions e.g. malignancy. Other conditions should therefore be considered and excluded before assuming the weight loss is COPD related. Nutritional advice can be instigated and should not be delayed whilst awaiting further investigations
- Care should be taken when interpreting BMI or percentage weight loss if oedema is present. Mid upper arm circumference (MUAC) can be used in the presence of severe oedema, or in the absence of weight measurement, to estimate BMI (MUAC of <23 cm often indicates a BMI <20 kg/m²)³⁴ (see www.bapen.org.uk/pdfs/must/must_explan.pdf)
- Hand grip strength may be used as a surrogate marker for muscle strength³⁵
- Depression and social isolation may be a problem in this group. Being housebound or having limited social activity can impact on ability to prepare and eat food

Principles of the Management of Malnutrition in COPD

Once identified as at risk of malnutrition, individuals with COPD can be managed using the pathway within this document. The principles of the management strategies in the pathway are detailed below:

- Management of malnutrition should be linked to the risk category (low, medium or high risk)

For all individuals: **record risk** **agree goals of intervention** **monitor**

Goal setting - Agree goals of intervention with individual/carer

- Set goals to assess the effectiveness of intervention, taking into account the stage of the disease e.g. nutritional support for weight maintenance or weight gain
- Goals could include: increase lean body mass, improve nutritional status, improve respiratory function, stabilise weight and retain function. (NB: goals need to be adjusted according to phase of disease, patient centred and realistic e.g. in palliative care or advanced illness goals may include slowing rate of weight loss)
- **Stable COPD:** it may be appropriate to aim for an increase in body weight and muscle mass (lean tissue). Amongst those who are malnourished a 2 kg increase is suggested as a threshold at which functional improvements are seen^{30,36-38}, timescales to achieve weight gain will depend on the individual's condition
- **Acute Exacerbations:** minimising the loss of weight and muscle mass (lean tissue) through nutritional intervention may be an appropriate goal
- **Pulmonary Rehabilitation:** is recommended as part of the management of individuals with COPD, and nutrition should be incorporated as part of the intervention⁶.
 - Nutritional intervention in patients with COPD at risk of malnutrition has been found to be associated with improved outcomes of exercise programmes^{6,38-41}
 - Dietary advice within programmes should be tailored to the individual e.g. for obese patients the goal may be weight reduction with preservation of muscle mass (lean tissue)
 - Consideration should be given to optimising nutritional status during pulmonary rehabilitation
 - Muscle protein is directly affected by protein intake in the diet and muscle oxidative metabolism may be stimulated nutritionally⁴²
 - Nutritional status should be monitored before, during and after pulmonary rehabilitation

Management of malnutrition

- Follow guidance in the management pathway on page 8 (or in line with your local pathway). This includes different strategies depending on the malnutrition risk category
- Management options can include: dietary advice, assistance with eating, texture modified diets and oral nutritional supplements (ONS) where indicated³²
- Dietary advice should aim to increase intake of all nutrients including energy, protein and micronutrients (vitamins and minerals)
- Dietary advice and ONS should be considered for those at risk of malnutrition to ensure further weight loss is prevented and functional measures are improved (e.g. sit to stand and 6-minute walk test)²⁰
- Consideration should be given to issues which may impact on food intake and the practicalities of dietary advice, such as access to food, reduced mobility and breathlessness e.g. mMRC ≥ 2
- Smoking cessation is an important strategy to support the management of malnutrition and may increase appetite and support weight gain⁴³⁻⁴⁴. Patients may also find their senses of smell and taste are enhanced if smoking is stopped; making food more pleasurable. Encourage smoking cessation to preserve lung function and improve appetite and taste

Monitoring progress

- Monitor progress against goals and modify intervention appropriately
- Consider weight change, hand-grip strength, sit to stand, along with observations including ability to perform activities of daily living, physical appearance, appetite and disease progression
- Frequency of monitoring depends on the risk category and intervention
- Further information on nutritional monitoring can be found in the NICE Guideline CG32³²

Optimising Nutritional Intake - An Evidence Based Approach to Managing Malnutrition

NICE Guidance (NG115⁶ and CG32³²):

NICE COPD guideline (NG115) recommends ONS are provided for individuals with COPD with a low BMI (<20 kg/m²)⁶. Further information on oral nutrition support is available in NICE CG32³².

Dietary advice to optimise nutritional intake

- Dietary advice in malnourished patients with COPD should be used with care to ensure that requirements for all essential nutrients i.e. energy, protein, vitamins and minerals, are met or given due consideration³²
- Energy and protein requirements are likely to be higher or increased for patients^{21,43,45-49} who are:
 - at nutritional risk/moderately or severely malnourished
 - acutely unwell/have an infection
 - exercising where accrual of muscle mass is the aim
 (See the PENG guidelines³⁵ for further information)
- The amount of protein recommended in those with COPD is estimated as follows:
 - 0.8 - 1.5 g protein/kg of body weight/day for non-malnourished/not at nutritional risk/stable COPD⁴³
 - up to 1.5 g protein/kg of body weight/day in acutely unwell (exacerbating) patients where the aim is to meet requirements/attenuate further losses^{35,43,46}

- Where the goal is to gain or retain lean mass, in conjunction with exercise (e.g. pulmonary rehabilitation) and/or in malnourished outpatients where weight gain is the goal, it is possible up to 1.5 g protein/kg of body weight/day may be required⁵⁰
(NB: in obese or overweight patients protein requirements should be calculated on ideal body weight.)
- In the absence of being able to translate the above requirements into amounts of protein required by an individual, patients should be encouraged to eat 3-4 portions of high protein foods per day - for further information/ideas on protein see **www.malnutritionpathway.co.uk/proteinfoods**
- Patients with COPD are at high risk of osteoporosis if they require frequent steroid therapy, are inactive and/or have little exposure to sunlight e.g. are housebound. Attention should be given to addressing requirements for Vitamin D and calcium including the need for supplementation^{41,51}.
- Dietary advice should be an integral part of COPD management across the continuum of care⁶, this core document is therefore supported by a range of patient advice leaflets (red, yellow, green) which have been designed to help provide practical nutritional advice to patients according to nutritional status, nutritional risk and disease status - **www.malnutritionpathway.co.uk/copd**
- Individuals with COPD may have concerns which affect the acceptability of dietary advice⁵² e.g. reservations about weight gain. Patient-centred discussions should be undertaken to discuss the potential benefit of nutritional interventions e.g. to maintain lung strength, overcome infection, improve ability to perform activities of daily living etc.
- Consideration should be given to the patient/carer's ability to act on the dietary advice given, with regular monitoring built into clinical reviews

Oral nutritional supplements (ONS) to optimise nutritional intake

- Dietary advice forms an important component of the management pathway⁵³⁻⁵⁴, and should be used alongside ONS where indicated, i.e. where BMI is low (<20 kg/m²) or in high risk individuals (unintentional weight loss >10% over 3-6 months)^{6,32}
- Evidence from systematic reviews show that ONS in addition to diet in COPD can:
 - Significantly improve hand grip strength^{36,38}
 - Significantly improve respiratory muscle strength^{20,55}
 - Enhance exercise performance³⁸
 - Significantly improve patients' nutritional intake³⁶
 - Significantly improve weight^{20,36,55}
 - Improve quality of life^{20,38,55}
- ONS increase total nutrient intakes (energy, protein and micronutrients) without affecting dietary intake⁵⁶
- Higher energy ONS (≥2 kcal/ml)⁵⁶ or low volume, high energy ONS (125 ml) may aid compliance and be easier to manage for individuals with early satiety and/or breathlessness
- Increased requirements for protein⁵⁰ and other nutrients in COPD may be managed with a high protein, high energy, low volume ONS
- Low volume, energy dense ONS to be taken in small, frequent doses⁵⁷ e.g. between meals (frequent small amounts of ONS are preferred to avoid postprandial dyspnoea and satiety as well as to improve compliance⁵⁷)
- Clinical benefits of ONS are often seen with 300-900 kcal/day (average 2 bottles), typically within 2-3 months of supplementation^{36,58-59}
- The exact choice of ONS should be based on a detailed nutritional assessment and patient preferences⁵⁵, and be in line with the recommendation to achieve an additional intake in the region of ~600 kcal/day^{36,58-59}.

NOTE: Due to heterogeneity in the studies evaluating oral nutrition support, the dose and duration of ONS remains unclear and hence in clinical practice this should be determined on an individual basis.

In all patients, care should be taken to ensure advice on adequate hydration is given.

Identifying Malnutrition According to Risk Category Using 'MUST'^{* 33} - First Line Management Pathway

BMI score >20 kg/m ² Score 0 18.5 – 20 kg/m ² Score 1 <18.5 kg/m ² Score 2	Weight loss score Unplanned weight loss score in past 3-6 months <5% Score 0 5 – 10% Score 1 >10% Score 2	Acute disease effect score (unlikely to apply outside hospital) If patient is acutely ill and there has been, or is likely to be, no nutritional intake for more than 5 days Score 2
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Total score 0-6

Low risk - score 0 Routine clinical care	Medium risk - score 1 Observe	High risk - score 2 or more Treat**
<ul style="list-style-type: none"> - Provide green leaflet: 'Eating Well for your Lungs' to raise awareness of the importance of a healthy diet - If BMI >30 (obese) treat according to local guidelines - Review / re-screen annually. 	<ul style="list-style-type: none"> - Dietary advice to maximise nutritional intake. Encourage small frequent meals and snacks, with high energy and protein food and fluids⁴³ - Provide yellow leaflet: 'Improving Your Nutrition in COPD' to support dietary advice NICE recommends⁶ COPD patients with a BMI <20 kg/m² should be: <ul style="list-style-type: none"> - prescribed oral nutritional supplements (ONS). See ONS pathway, page 9 - encouraged to exercise to augment the effects of nutritional supplementation - Review progress after 1-3 months: <ul style="list-style-type: none"> - if improving continue until 'low risk' - if deteriorating, consider treating as 'high risk'. 	<ul style="list-style-type: none"> - Dietary advice to maximise nutritional intake. Encourage small frequent meals and snacks, with high energy and protein food and fluids⁴³ - Provide red leaflet: 'Nutrition Support in COPD' to support dietary advice - Prescribe oral nutritional supplements (ONS) and monitor (see ONS pathway, page 9) - Review progress according to ONS pathway, page 9 - On improvement, consider managing as 'medium risk' - Refer to dietitian if no improvement or more specialist support is required.

* The 'Malnutrition Universal Screening Tool' ('MUST') is reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For more information and supporting materials see <http://www.bapen.org.uk/musttoolkit.html>
 ** Treat, unless detrimental or no benefit is expected from nutritional support e.g. imminent death.

Consider factors contributing to malnutrition/poor nutritional intake and whether they can be treated or managed:

• Shortness of breath • Dry Mouth • Taste changes • Nausea • Early satiety • Poor appetite • Fatigue • Anorexia • Polypharmacy

See relevant patient and carer leaflets for advice: www.malnutritionpathway.co.uk/copd

The following indicators can be used collectively to estimate risk of malnutrition in the absence of height and weight (measured or recalled)³³

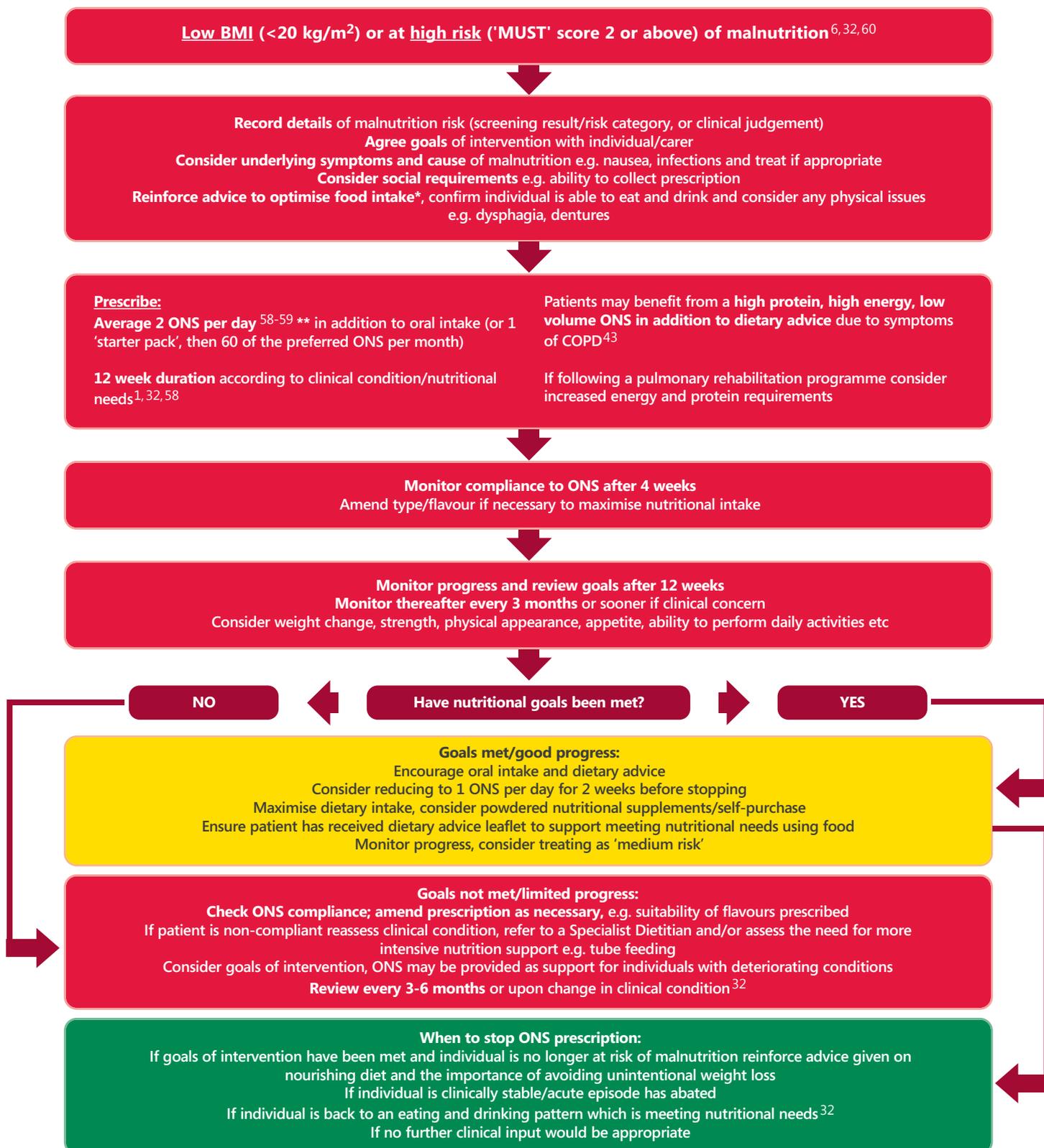
- Thin or very thin in appearance, or loose fitting clothes/jewellery
- History of recent unplanned weight loss
- Changes in appetite, need for assistance with feeding or swallowing difficulties affecting ability to eat and drink
- A reduction in current dietary intake compared to 'normal'

Estimated risk of malnutrition	Indicators
Unlikely to be at-risk (low)	Not thin, weight is stable or increasing, no unplanned weight loss, no reduction in appetite or intake
Possibly at-risk (medium)	Thin as a result of COPD or other condition, or unplanned weight loss in past 3-6 months, reduced appetite or ability to eat
Likely to be at risk (high)	Thin or very thin and/or significant unplanned weight loss in previous 3-6 months, reduced appetite or ability to eat and/or reduced dietary intake

For all individuals

- Discuss when to seek help e.g. ongoing weight loss, changes to body shape, strength or appetite
- Refer to other HCPs if additional support is required (e.g. dietitian, physiotherapist, GP)

Pathway for Using Oral Nutritional Supplements (ONS) in the Management of Malnutrition in COPD

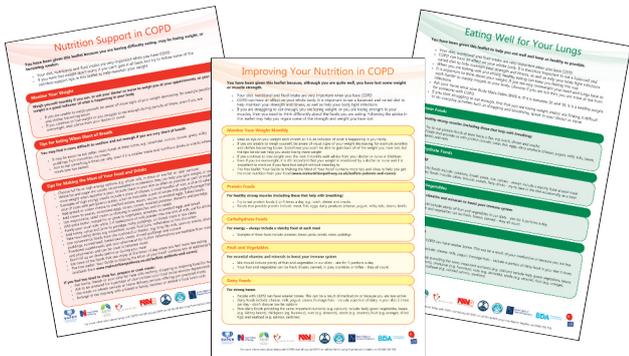


ONS – oral nutritional supplements / sip feeds / nutrition drinks as per BNF section 9.4.2⁶¹
 * 'Your Guide to Making the Most of Your Food' is available from www.malnutritionpathway.co.uk
 For more detailed support or for patients with complex conditions seek advice from a Dietitian
 ** Some individuals may require more than 3 ONS per day – seek dietetic advice

NOTE: ONS requirement will vary depending on nutritional requirements, patient condition and ability to consume adequate nutrients, ONS dose and duration should be considered

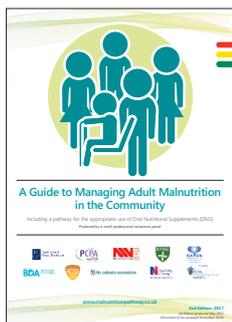
Useful Information

Managing Malnutrition in COPD patient materials



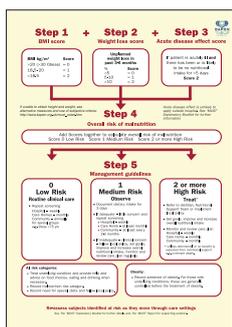
(www.malnutritionpathway.co.uk/copd)
 The red, yellow and green leaflets for patients mentioned throughout this document are available free to download from this website

Information on a best practice example of local implementation of the Managing Malnutrition in COPD pathway can be found under Great Western Hospitals NHS Foundation Trust at www.malnutritionpathway.co.uk/best-practice-awards-winners



Managing Adult Malnutrition in the Community
 Guidelines and resources to support the management of adult malnutrition in the community

(www.malnutritionpathway.co.uk)



BAPEN
British Association for Parenteral and Enteral Nutrition
 (www.bapen.org.uk)
 Key documents and reports 'MUST' toolkit, including 'MUST', explanatory booklet, e-learning and 'MUST' calculator



NICE
National Institute for Health and Care Excellence
 (www.nice.org.uk)

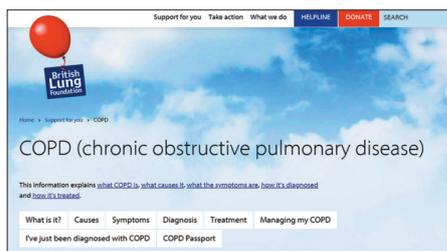
NICE CG32: Nutrition Support in Adults
 NICE QS24: Nutrition Support in Adults
 NICE NG115: Chronic Obstructive Pulmonary Disease in over 16s: Diagnosis and Management



BDA
British Dietetic Association
 (www.bda.uk.com)
 Fact sheet and key documents



Carers UK
 (www.carers.org.uk)
 Useful nutrition leaflets and resources



BLF British Lung Foundation (www.blf.org.uk/COPD)
 Health information about living with COPD

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This document has been produced by a panel of healthcare professionals experienced in working with patients with COPD. Please send any feedback or requests for permission to reproduce any part of the guide to Hilary Franklin Healthcare Communications, 30 Queens Drive, Thames Ditton, Surrey, KT7 0TW. Email: malnutritionpathway@franklincoms.co.uk

Identifying Malnutrition According to Risk Category Using 'MUST'^{*33} - First Line Management Pathway

BMI score		Weight loss score		Acute disease effect score
>20 kg/m ²	Score 0	Unplanned weight loss score in past 3-6 months		(unlikely to apply outside hospital)
18.5 – 20 kg/m ²	Score 1	<5%	Score 0	If patient is acutely ill and there has been, or is likely to be, no nutritional intake for more than 5 days
<18.5 kg/m ²	Score 2	5 – 10%	Score 1	
		>10%	Score 2	

Total score 0-6

Low risk - score 0 Routine clinical care	Medium risk - score 1 Observe	High risk - score 2 or more Treat**
<ul style="list-style-type: none"> - Provide green leaflet: 'Eating Well for your Lungs' to raise awareness of the importance of a healthy diet - If BMI >30 (obese) treat according to local guidelines - Review / re-screen annually. 	<ul style="list-style-type: none"> - Dietary advice to maximise nutritional intake. Encourage small frequent meals and snacks, with high energy and protein food and fluids⁴³ - Provide yellow leaflet: 'Improving Your Nutrition in COPD' to support dietary advice <p>NICE recommends⁶ COPD patients with a BMI <20 kg/m² should be:</p> <ul style="list-style-type: none"> - prescribed oral nutritional supplements (ONS). See ONS pathway, page 9 - encouraged to exercise to augment the effects of nutritional supplementation <ul style="list-style-type: none"> - Review progress after 1-3 months: <ul style="list-style-type: none"> - if improving continue until 'low risk' - if deteriorating, consider treating as 'high risk'. 	<ul style="list-style-type: none"> - Dietary advice to maximise nutritional intake. Encourage small frequent meals and snacks, with high energy and protein food and fluids⁴³ - Provide red leaflet: 'Nutrition Support in COPD' to support dietary advice - Prescribe oral nutritional supplements (ONS) and monitor (see ONS pathway, page 9) - Review progress according to ONS pathway, page 9 - On improvement, consider managing as 'medium risk' - Refer to dietitian if no improvement or more specialist support is required.

* The 'Malnutrition Universal Screening Tool' ('MUST') is reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For more information and supporting materials see <http://www.bapen.org.uk/musttoolkit.html>

** Treat, unless detrimental or no benefit is expected from nutritional support e.g. imminent death.

Consider factors contributing to malnutrition/poor nutritional intake and whether they can be treated or managed:

- Shortness of breath • Dry Mouth • Taste changes • Nausea • Early satiety • Poor appetite • Fatigue • Anorexia • Polypharmacy

See relevant patient and carer leaflets for advice: www.malnutritionpathway.co.uk/copd

The following indicators can be used collectively to estimate risk of malnutrition in the absence of height and weight (measured or recalled)³³

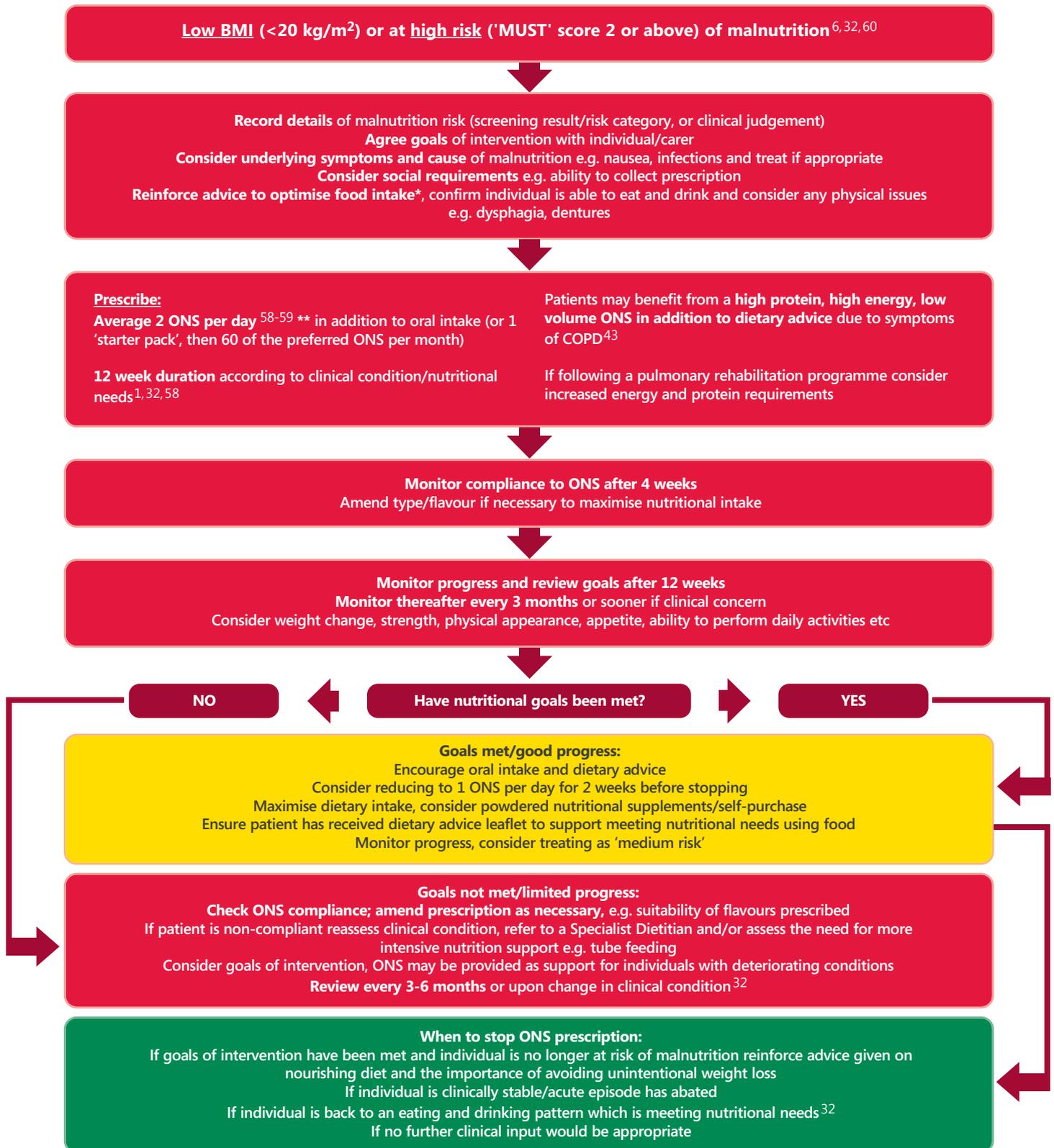
- Thin or very thin in appearance, or loose fitting clothes/jewellery
- History of recent unplanned weight loss
- Changes in appetite, need for assistance with feeding or swallowing difficulties affecting ability to eat and drink
- A reduction in current dietary intake compared to 'normal'

Estimated risk of malnutrition	Indicators
Unlikely to be at-risk (low)	Not thin, weight is stable or increasing, no unplanned weight loss, no reduction in appetite or intake
Possibly at-risk (medium)	Thin as a result of COPD or other condition, or unplanned weight loss in past 3-6 months, reduced appetite or ability to eat
Likely to be at risk (high)	Thin or very thin and/or significant unplanned weight loss in previous 3-6 months, reduced appetite or ability to eat and/or reduced dietary intake

For all individuals

- Discuss when to seek help e.g. ongoing weight loss, changes to body shape, strength or appetite
- Refer to other HCPs if additional support is required (e.g. dietitian, physiotherapist, GP)

Pathway for Using Oral Nutritional Supplements (ONS) in the Management of Malnutrition in COPD



ONS – oral nutritional supplements / sip feeds / nutrition drinks as per BNF section 9.4.2⁶¹
 * 'Your Guide to Making the Most of Your Food' is available from www.malnutritionpathway.co.uk
 For more detailed support or for patients with complex conditions seek advice from a Dietitian
 ** Some individuals may require more than 3 ONS per day – seek dietetic advice

NOTE: ONS requirement will vary depending on nutritional requirements, patient condition and ability to consume adequate nutrients, ONS dose and duration should be considered