Advancing Clinical Nutrition
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The 'MUST' Explanatory Booklet

A Guide to the 'Malnutrition Universal Screening Tool' ('MUST') for Adults

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Edited on behalf of MAG by
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The 'MUST' Explanatory Booklet has been designed to explain the need for nutritional screening and how to undertake screening using the 'Malnutrition Universal Screening Tool' ('MUST'). It can also be used for training purposes. The Booklet is part of the 'MUST package which also includes

- 'Malnutrition Universal Screening Tool' ('MUST')
- *The 'MUST' Report*

For further information on any aspect of the 'MUST', care plan, or references, please see the full guideline document *The 'MUST' Report*.

This Explanatory Booklet, 'MUST' and the Executive Summary of *The 'MUST' Report* are available to download from the BAPEN website www.bapen.org.uk.

Printed copies of all 'MUST' components are available to purchase from the BAPEN office

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The British Association for Parenteral and Enteral Nutrition (BAPEN)

BAPEN is a multi-professional association and registered charity established in 1992. Its membership is drawn from doctors, dietitians, nurses, patients, pharmacists and from the health policy, industry, public health and research sectors. The Malnutrition Advisory Group (MAG) is a Standing Committee of BAPEN.

For membership details, contact the BAPEN office or log on to the BAPEN website.

BAPEN's principal functions are to:

- Enhance understanding and management of malnutrition
- Establish a clinical governance framework to underpin the nutritional management of all patients
- Enhance knowledge and skills in clinical nutrition through education and training
- Communicate the benefits of clinical and cost-effective optimal nutritional care to all healthcare professionals, policy-makers and the public
- Fund a multi-professional research programme

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The 'MUST' Explanatory Booklet

Contents

1. Background

Purpose

The 'Malnutrition Universal Screening Tool' ('MUST') has been designed to help you identify adults who are underweight and at risk of malnutrition, as well as those who are obese. It has not been designed to detect deficiencies in or excessive intakes of vitamins and minerals.

Definition of malnutrition

Although the term malnutrition can refer to both under- and overnutrition, **it is used here to refer to undernutrition.**
A BMI >30 kg/m^2 is used to indicate very overweight (obese) individuals.

Malnutrition and public health

In the general population, approximately 5% have a BMI<20 kg/m^2 (underweight)[1]. However, a much larger proportion of individuals with chronic disease (12%), those resident in care homes (16-29%) and those admitted to hospital (15-40%)[2-5] are underweight.

It is estimated that, at any one time, at least two million adults in the UK are affected by malnutrition. The more vulnerable at risk groups include those with chronic diseases, the elderly, those recently discharged from hospital, and those who are poor or socially isolated.

Using 'MUST', malnutrition risk has been identified in 20%-60% of hospital admissions to medical, surgical, elderly and orthopaedic wards, in 14% of free-living elderly, in 20%-50% of patients in the community in different types of care homes and between 18%-30% of patients attending outpatient clinics and GP surgeries[6-11].

Consequences of malnutrition

Malnutrition is frequently undetected and untreated causing a wide range of adverse consequences.[12]

Some adverse effects of malnutrition include:

- Impaired immune responses - increasing risks of infection
- Reduced muscle strength and fatigue
- Reduced respiratory muscle function - resulting in increased difficulties in breathing and expectoration, in turn increasing the risk of chest infection and respiratory failure
- Impaired thermoregulation - predisposition to hypothermia
- Impaired wound healing and delayed recovery from illness
- Apathy, depression and self neglect
- Increased risk of admission to hospital and length of stay
- Poor libido, fertility, pregnancy outcome and mother child interactions

These adverse effects of malnutrition increase costs to the National Health Services (NHS) throughout the UK and the community as a whole.

In the community, elderly individuals identified as at risk of malnutrition with 'MUST' are more likely to be admitted to hospital and to visit their GP more frequently[7].Underweight individuals (BMI <20 kg/m^2) have also been shown to consume more healthcare resources than those with a BMI between 20 and 25 kg/m^2, having more prescriptions (9%), more GP visits (6%) and more hospital admissions (25%)[13].

In hospital, patients at risk of malnutrition stay in hospital significantly longer and are more likely to be discharged to health care destinations other than home[8,9].

Evaluation and review

The ‘Malnutrition Universal Screening Tool’ (‘MUST’) has been evaluated in hospital wards, outpatient clinics, general practice, the community and in care homes. Using the ‘MUST’ to categorise patients for their risk of malnutrition was found to be easy, rapid, reproducible, and internally consistent. ‘MUST’ can be used in patients in whom height and weight are not obtainable, as a range of alternative measures and subjective criteria are provided.

The evidence base for ‘MUST’ is summarised in *The ‘MUST’ Report,* copies of which are available from the BAPEN Office.

The ‘MUST’ was developed by the Malnutrition Advisory Group (MAG), a Standing Committee of the British Association for Parenteral and Enteral Nutrition (BAPEN). The MAG consists of academics, physicians, nurses, dietitians, pharmacists and patients. The development of ‘MUST’ was independently reviewed by members of the Royal College of Physicians, Royal College of General Practitioners, Royal College of Obstetricians and Gynaecologists, Royal College of Nursing, British Dietetic Association, and many other organisations, independent clinicians and healthcare practitioners.

It is planned to review ‘MUST’ on an annual basis.

2. Nutritional screening and care planning with the 'MUST'

Nutritional screening

This is the first step in identifying subjects who may be at nutritional risk or potentially at risk, and who may benefit from appropriate nutritional intervention. It is a rapid, simple and general procedure used by nursing, medical, or other staff on first contact with the subject so that clear guidelines for action can be implemented and appropriate nutritional advice provided. Some subjects may just need help and advice with eating and drinking; others may need to be referred for more expert advice.

Screening may need to be repeated regularly as a subject's clinical condition and risk of nutritional problems can change.

It is particularly important to re-assess subjects identified at risk as they move through care settings.

> It is always better to prevent or detect problems early by screening than discover serious problems later

How to screen using the 'MUST'

There are five steps to follow:

Steps 1 and 2 - Gather nutritional measurements (height, weight, BMI, recent unplanned weight loss). *If it is not possible to obtain height and weight, use alternative measurements (see pp. 10-16).*

Step 3 - Consider the acute disease effect.

Step 4 - Determine the overall risk score or category of malnutrition. *If neither BMI nor weight loss can be established, assess overall risk subjectively using 'Other criteria' (see page 7).*

Step 5 - Using the management guidelines and/or local policy, form an appropriate care plan. *See example on the 'MUST' flowchart on page 19.*

Steps 1 - 5

Step 1: Body mass index (BMI) (kg/m^2)

- BMI gives a rapid interpretation of chronic protein-energy status based on an individual's height and weight.
- Take the subject's height and weight to calculate BMI, or use the BMI chart (see pp. 20-21 for the 'MUST' BMI chart) to establish the subject's BMI score.
- If weight and height are not available, self reported height or weight, if realistic and reliable, may be appropriate. Alternative measurements and observations can also be used (see pp.10-16). If unobtainable, other criteria should be used to give an overall clinical impression of nutritional risk.

Score	BMI range (kg/m^2)	Weight Category	Significance
2	< 18.5	Underweight	Poor protein - energy status **probable**
1	18.5 - 20	Underweight	Poor protein-energy status **possible**
0	20 - 25	Desirable weight	Poor protein-energy status **unlikely**
0	25 - 30	Overweight	Increased risk of complications associated with chronic overweight
0 (obese)	> 30	Very overweight (obesity)	Moderate (30 - 35kg/m^2) high (35 - 40 kg/m^2) and very high risk (>40 kg/m^2) of obesity-related complications

Step 2: Weight loss

- Unplanned weight loss over 3 - 6 months is a more acute risk factor for malnutrition than BMI.
- To establish the subject's weight loss score, ask if there has been any weight loss in the last 3 - 6 months, and if so how much (or look in their medical records).
- Deduct current weight from previous weight to calculate amount of weight lost. Use weight loss tables (see page 22) to establish weight loss score.
- If the subject has not lost weight (or has gained weight) score 0.

Score	Unplanned weight loss in past 3-6 months (% body weight)	Significance
2	>10	Clinically significant
1	5-10	More than normal intra-individual variation - early indicator of increased risk of undernutrition
0	<5	Within 'normal' intra- individual variation

Step 3: Acute disease can affect risk of malnutrition

- If the subject is currently affected by an acute patho-physiological or psychological condition, and there has been no nutritional intake or likelihood of no intake for more than 5 days, they are likely to be at nutritional risk. Such patients include those who are critically ill, have swallowing difficulties (e.g. after stroke), or head injuries or are undergoing gastrointestinal surgery.

Add 2 to the score

Step 4: Overall risk of malnutrition

Establish overall risk of malnutrition after considering all relevant factors. Add scores together from Steps 1, 2 and 3 to calculate overall risk of malnutrition.

0 = low risk 1 = medium risk 2 or more = high risk

If neither BMI nor weight loss can be established, assess overall risk subjectively using the 'Other criteria' in the box below.

Other criteria

If height, weight or BMI cannot be obtained, the following criteria which relate to them can help form a clinical impression of an individual's overall nutritional risk. The factors listed below can either contribute to or influence the risk of malnutrition. Please note, use of these criteria will not result in an actual score for nutritional risk but will help indicate whether or not a subject is at increased risk of malnutrition.

i) BMI

- Clinical impression - thin, acceptable weight, overweight. Obvious wasting (very thin) and obesity (very overweight) can be noted.

(ii) Weight loss

- Clothes and / or jewellery have become loose fitting.
- History of decreased food intake, reduced appetite or dysphagia (swallowing problems) over 3 - 6 months and underlying disease or psychosocial/ physical disabilities likely to cause weight loss.

(iii) Acute disease

- No nutritional intake or likelihood of no intake for more than 5 days.

Estimate a malnutrition risk score based on your evaluation.

Step 5: Management guidelines

Setting an appropriate care plan

- Record subject's overall risk score, agree and document a care plan and any advice given.
- Subjects in high or medium risk categories typically require some form of intervention as suggested in the box below. For an example of management guidelines, see the 'MUST' flowchart on page 19.

'MUST' score (BMI + weight loss + acute disease effect)	Overall risk of malnutrition	Action
2 or >2	High	**Treat** - unless detrimental or no benefit from nutritional support expected e.g. imminent death.
1	Medium	**Observe** - or treat if approaching high risk or if rapid clinical deterioration anticipated
0	Low	**Routine care** - unless major clinical deterioration expected

In obese subjects, underlying acute conditions are generally controlled before treating obesity

The care plan

1. Set aims and objectives of treatment.
2. Treat any underlying conditions.
3. Treat malnutrition with food and/or nutritional supplements. Subjects who are unable to meet their nutritional requirements orally may require artificial nutritional support e.g. enteral or parenteral nutrition. None of these methods are exclusive and combinations of any or all may be needed. If subjects are overweight or obese, follow local guidelines for weight management.
4. Monitor and review nutritional intervention and care plan.
5. Reassess subjects identified at nutritional risk as they move through care settings.

Oral nutritional interventions

Food

Consider the following:

- Provide help and advice on food choices, eating and drinking.
- Ensure tasty, attractive food of good nutritional value during and between meals.
- Offer assistance with shopping, cooking and eating where appropriate.
- Provide a pleasant environment in which to eat - in hospital, at home, in dining clubs or via other organisations.

Oral nutritional supplements

Consider the following:

- Use oral nutritional supplements if it is not possible to meet nutritional requirements from food. Typically an additional daily intake of 250-600 kcal can be of value.
- Dietary advice and counselling should be given when recommending nutritional supplements.

Artificial nutritional support (enteral and parenteral nutrition)

If required, follow local policy.

Monitoring

All subjects identified as being at risk of malnutrition should be monitored on a regular basis to ensure that their care plan continues to meet their needs.

3. Taking measurements for use with the 'MUST'

Measuring height and weight

Height

- Use a height stick (stadiometer) where possible. Make sure it is correctly positioned against the wall.
- Ask subject to remove shoes and to stand upright, feet flat, heels against the height stick or wall (if height stick not used).
- Make sure the subject is looking straight ahead and lower the head plate until it gently touches the top of the head.
- Read and document height.

Weight

- Use clinical scales wherever possible. Make sure they have been regularly checked for accuracy and ensure that they read zero without the subject standing on them.
- Weigh subject in light clothing and without shoes.

Calculation of body mass index (BMI)

Actual BMI can be calculated using the following equation:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

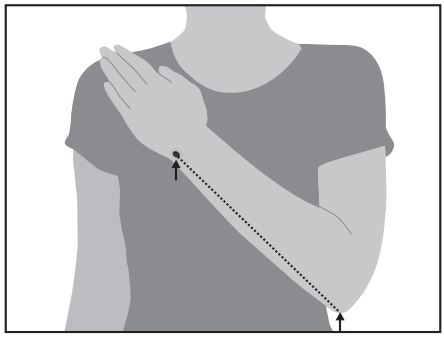
The BMI score can be obtained using the BMI chart provided (see pp. 20-21).

Alternative measurements

Height

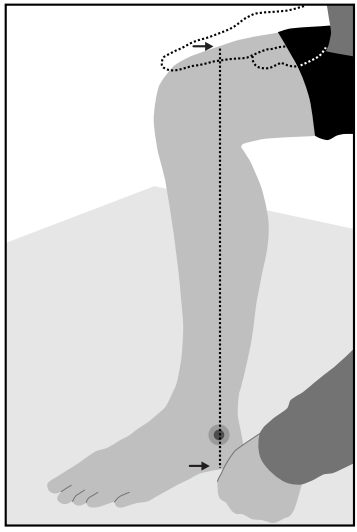
- If height cannot be measured, use recently documented or self-reported height (if reliable and realistic).
- If height cannot be measured or the subject does not know or is unable to report their height, the following alternative measurements can be used to calculate height.

(i) Length of forearm (ulna)



- Ask subject to bend an arm (left side if possible), palm across chest, fingers pointing to opposite shoulder.
- Using a tape measure, measure the length in centimetres (cm) to the nearest 0.5 cm between the point of the elbow (olecranon) and the mid-point of the prominent bone of the wrist (styloid process).
- Use the table on page 12 to convert ulna length (cm) to height (m).

(ii) Knee height



- Measure left leg if possible.
- The subject should sit on a chair, without footwear, with knee at a right angle.
- Hold tape measure between 3rd and 4th fingers with zero reading underneath fingers.
- Place your hand flat across the subject's thigh, about 4 cm (1½ inches) behind the front of the knee.
- Extend the tape measure straight down the side of the leg in line with the bony prominence at the ankle (lateral malleolus) to the base of the heel. Measure to nearest 0.5cm.
- Note the length and use the table on page 13 to convert knee height (cm) to height (m).

Estimating height from ulna length

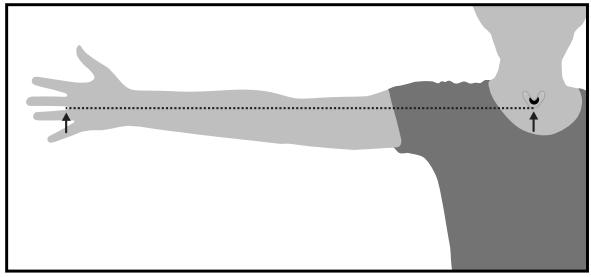
HEIGHT (m)	Men (<65 years)	1.94	1.93	1.91	1.89	1.87	1.85	1.84	1.82	1.80	1.78	1.76	1.75	1.73	1.71
	Men (>65 years)	1.87	1.86	1.84	1.82	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.67
	Ulna length (cm)	32.0	31.5	31.0	30.5	30.0	29.5	29.0	28.5	28.0	27.5	27.0	26.5	26.0	25.5
HEIGHT (m)	Women (<65 years)	1.84	1.83	1.81	1.80	1.79	1.77	1.76	1.75	1.73	1.72	1.70	1.69	1.68	1.66
	Women (>65 years)	1.84	1.83	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.66	1.65	1.63
HEIGHT (m)	Men (<65 years)	1.69	1.67	1.66	1.64	1.62	1.60	1.58	1.57	1.55	1.53	1.51	1.49	1.48	1.46
	Men (>65 years)	1.65	1.63	1.62	1.60	1.59	1.57	1.56	1.54	1.52	1.51	1.49	1.48	1.46	1.45
	Ulna length (cm)	25.0	24.5	24.0	23.5	23.0	22.5	22.0	21.5	21.0	20.5	20.0	19.5	19.0	18.5
HEIGHT (m)	Women (<65 years)	1.65	1.63	1.62	1.61	1.59	1.58	1.56	1.55	1.54	1.52	1.51	1.50	1.48	1.47
	Women (>65 years)	1.61	1.60	1.58	1.56	1.55	1.53	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.40

Estimating height from knee height

HEIGHT (m)	Men (18-59 years)	1.94	1.93	1.92	1.91	1.90	1.89	1.88	1.87	1.865	1.86	1.85	1.84	1.83	1.82	1.81
	Men (60-90 years)	1.94	1.93	1.92	1.91	1.90	1.89	1.88	1.87	1.86	1.85	1.84	1.83	1.82	1.81	1.80
	Knee height (cm)	6 5	64.5	64	63.5	63	62.5	62	61.5	61	60.5	60	59.5	59	58.5	58
HEIGHT (m)	Women (18-59 years)	1.89	1.88	1.875	1.87	1.86	1.85	1.84	1.83	1.82	1.81	1.80	1.79	1.78	1.77	1.76
	Women (60-90 years)	1.86	1.85	1.84	1.835	1.83	1.82	1.81	1.80	1.79	1.78	1.77	1.76	1.75	1.74	1.73
HEIGHT (m)	Men (18-59 years)	1.80	1.79	1.78	1.77	1.76	1.75	1.74	1.73	1.72	1.71	1.705	1.70	1.69	1.68	1.67
	Men (60-90 years)	1.79	1.78	1.77	1.76	1.74	1.73	1.72	1.71	1.70	1.69	1.68	1.67	1.66	1.65	1.64
	Knee height (cm)	57.5	57	56.5	56	55.5	55	54.5	54	53.5	53	52.5	52	51.5	51	50.5
HEIGHT (m)	Women (18-59 years)	1.75	1.74	1.735	1.73	1.72	1.71	1.70	1.69	1.68	1.67	1.66	1.65	1.64	1.63	1.62
	Women (60-90 years)	1.72	1.71	1.70	1.69	1.68	1.67	1.66	1.65	1.64	1.63	1.625	1.62	1.61	1.60	1.59
HEIGHT (m)	Men (18-59 years)	1.66	1.65	1.64	1.63	1.62	1.61	1.60	1.59	1.58	1.57	1.56	1.555	1.55	1.54	1.53
	Men (60-90 years)	1.63	1.62	1.61	1.60	1.59	1.58	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.49	1.48
	Knee height (cm)	5 0	49.5	49	48.5	48	47.5	47	46.5	46	45.5	45	44.5	44	43.5	43
HEIGHT (m)	Women (18-59 years)	1.61	1.60	1.59	1.585	1.58	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.49	1.48
	Women (60-90 years)	1.58	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.47	1.46	1.45	1.44

(iii) Demispan

- Ideally the subject should stand as this makes taking the measure ment easier.
- Locate and mark the mid-point of the sternal notch (V at the base of the neck).
- Ask the subject to raise the right arm until it is horizontal with the shoulder (give assistance if necessary, make sure wrist is straight).
- Place a tape measure between the middle and ring finger of the subject's right hand, with zero at the base of the fingers.
- Extend the tape measure along the length of the arm to the mid-point of the sternal notch and note the measurement to the nearest 0.5cm. Use the table on page 15 to convert demispan length (cm) to height (m).



Notes:

- Demispan should not be used in subjects with severe or obvious curvature of the spine (kyphosis or scoliosis).
- For bed bound subjects, those with severe disabilities and those with kyphosis or scoliosis, it is preferable to use ulna length to estimate height.

Weight

If subject cannot be weighed, use a weight recently documented in their notes or use self-reported weight (if reliable and realistic).

Recent weight loss

- If weight measurements are not possible, a history of weight loss may be helpful. Use serial measurements, documented in subject's notes or self-reported weight loss (if reliable and realistic).
- Look at subject's clothes and jewellery - are they loosely fitting? (weight loss).

Estimating height using demispan

HEIGHT (m)	Men (16-54 years)	1.97	1.95	1.94	1.93	1.92	1.90	1.89	1.88	1.86	1.85	1.84	1.82	1.81	1.80	1.78	1.77	1.76
	Men (>55 years)	1.90	1.89	1.87	1.86	1.85	1.84	1.83	1.81	1.80	1.79	1.78	1.77	1.75	1.74	1.73	1.72	1.71
	Demispan (cm)	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83
HEIGHT (m)	Women (16-54 years)	1.91	1.89	1.88	1.87	1.85	1.84	1.83	1.82	1.80	1.79	1.78	1.76	1.75	1.74	1.72	1.71	1.70
	Women (>55 years)	1.86	1.85	1.83	1.82	1.81	1.80	1.79	1.77	1.76	1.75	1.74	1.73	1.71	1.70	1.69	1.68	1.67
HEIGHT (m)	Men (16-54 years)	1.75	1.73	1.72	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.62	1.60	1.59	1.58	1.56	1.55	1.54
	Men (>55 years)	1.69	1.68	1.67	1.66	1.65	1.64	1.62	1.61	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.51	1.50
	Demispan (cm)	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
HEIGHT (m)	Women (16-54 years)	1.69	1.67	1.66	1.65	1.63	1.62	1.61	1.59	1.58	1.57	1.56	1.54	1.53	1.52	1.50	1.49	1.48
	Women (>55 years)	1.65	1.64	1.63	1.62	1.61	1.59	1.58	1.57	1.56	1.55	1.54	1.52	1.51	1.50	1.49	1.47	1.46

Estimating body mass index (BMI) category

If neither height nor weight can be measured or obtained, BMI can be estimated using the mid upper arm circumference (MUAC)

Measuring mid upper arm circumference (MUAC)
See Fig.1

- The subject should be standing or sitting.
- Use left arm if possible and ask subject to remov- clothing so arm is bare.
- Locate the top of the shoulder (acromion) and the point of the elbow (olecranon process).
- Measure the distance between the 2 points, identify the mid point and mark on the arm.

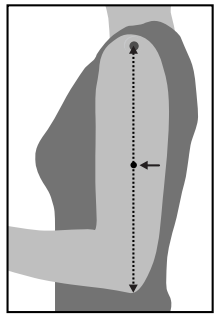


Fig. 1

See Fig.2

- Ask subject to let arm hang loose and with tape measure, measure circumference of arm at the mid point. Do not pull the tape measure tight - it should just fit comfortably round the arm.

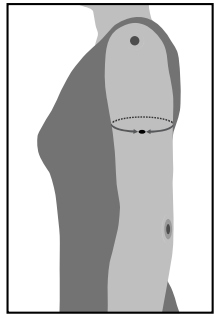


Fig. 2

If MUAC is less than 23.5 cm, BMI is likely to be less than 20 kg/m^2 i.e. subject is likely to be underweight.

If MUAC is more than 32.0 cm, BMI is likely to be more than 30 kg/m^2 i.e. subject is likely to be obese.

Weight change over time

- MUAC can also be used to estimate weight change over a period of time and can be useful in subjects in long term care.
- MUAC needs to be measured repeatedly over a period of time, preferably taking 2 measurements on each occasion and using the average of the 2 figures.

If MUAC changes by at least 10% then it is likely that weight and BMI have changed by approximately 10% or more.

4. Notes, charts and tables

Notes

1. The BMI values on the BMI chart provided with the 'MUST'' have been rounded to the nearest whole number. The yellow shaded area represents BMI values of 18.5 - 20.0 kg/m^2. Therefore, values of 20 which lie above this shaded area represent values greater than 20 and less than 20.5 kg/m^2. Values of 18 which lie below this area represent values less than 18.5 and above 17.5 kg/m^2.

2. Care should be taken when interpreting the patient's BMI or percentage weight loss if any of the following are present:

   Fluid disturbances: (i) ***BMI*** More significant if underweight with oedema; subtract ~2kg for barely detectable oedema (severe oedema is >10 kg; *see The 'MUST' Report)*; can use MUAC when there is ascites or oedema in legs or trunk but not arms; re-measure weight after correcting dehydration or overhydration; inspect the subject to classify as thin, acceptable weight, or overweight/obese. **(ii)** ***Weight change*** When there are large and fluctuating fluid shifts, a history of changes in appetite and presence of conditions likely to lead to weight change, are factors that can be used as part of an overall subjective evaluation of malnutrition risk (low or medium/high risk categories).

   Pregnancy: ***(i) Pre-pregnancy BMI*** Measured in early pregnancy; self-reported or documented weight and height (or estimated using measurements in early pregnancy); MUAC at any time during pregnancy. ***(ii) Weight change*** Weight gains <1 kg (<0.5 kg in the obese) or >3 kg per month during the 2nd and 3rd trimester generally require further evaluation. See *The 'MUST' Report* for further details.

   Lactation: ***(i) BMI*** Measured BMI. ***(ii) Weight change*** As for oedema (above).

   Critical illness: ***Acute disease effect*** (no dietary intake for >5 days). This generally applies to most patients in intensive care or high dependency units.

Plaster casts: ***BMI*** Synthetic and plaster of paris casts for upper limb weigh <1 kg; lower leg and back 0.9 - 4.5 kg depending on material and site. See *The 'MUST' Report* for further details.

Amputations: ***BMI*** Adjustments of body weight can be made from knowledge of missing limb segments: upper limb 4.9% (upper arm 2.7%; forearm, 1.6%; hand, 0.6%); lower limb 15.6% (thigh 9.7%; lower leg 4.5%; foot 1.4%).

3. For those patients who are identified as being overweight or obese and are acutely ill, the need to address weight loss should be postponed until that individual is in a more stable clinical position.

BAPEN
Advancing Clinical Nutrition

'Malnutrition Universal Screening Tool' ('MUST')

MAG
Malnutrition Advisory Group
A Standing Committee of BAPEN

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Step 1 + Step 2 + Step 3

Step 1 — BMI score

BMI kg/m²	Score
>20(>30 Obese)	= 0
18.5-20	= 1
<18.5	= 2

Step 2 — Weight loss score

Unplanned weight loss in past 3-6 months

%	Score
<5	= 0
5-10	= 1
>10	= 2

Step 3 — Acute disease effect score

If patient is acutely ill and there has been or is likely to be no nutritional intake for >5 days
Score 2

If unable to obtain height and weight, see reverse for alternative measurements and use of subjective criteria

Step 4

Overall risk of malnutrition

Add Scores together to calculate overall risk of malnutrition
Score 0 Low Risk Score 1 Medium Risk Score 2 or more High Risk

Step 5

Management guidelines

0 Low Risk

Routine clinical care

- Repeat screening
  Hospital – weekly
  Care Homes – monthly
  Community – annually
  for special groups
  e.g. those >75 yrs

1 Medium Risk

Observe

- Document dietary intake for 3 days if subject in hospital or care home
- If improved or adequate intake – little clinical concern; if no improvement – clinical concern - follow local policy
- Repeat screening
  Hospital – weekly
  Care Home – at least monthly
  Community – at least every 2-3 months

2 or more High Risk

Treat*

- Refer to dietitian, Nutritional Support Team or implement local policy
- Improve and increase overall nutritional intake
- Monitor and review care plan
  Hospital – weekly
  Care Home – monthly
  Community – monthly

* Unless detrimental or no benefit is expected from nutritional support e.g. imminent death.

All risk categories:

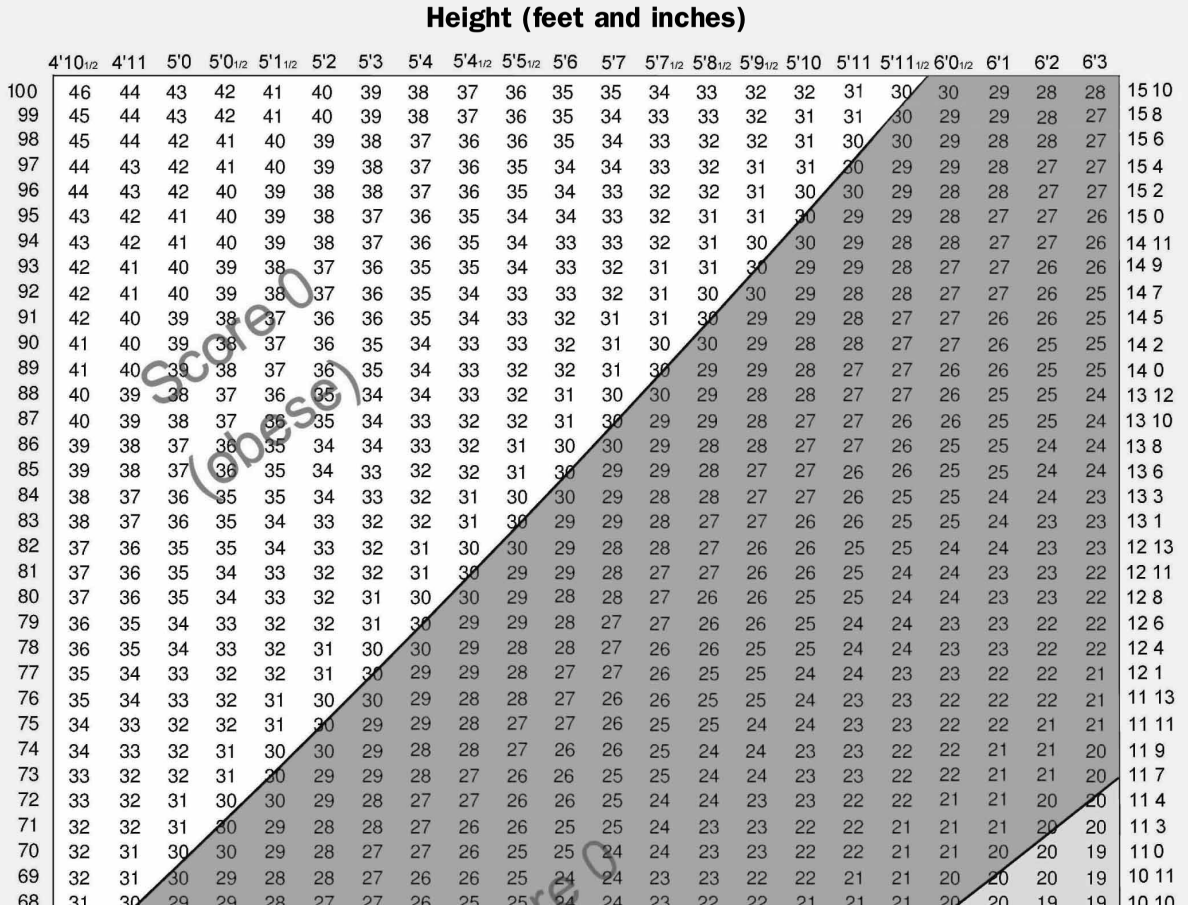
- Treat underlying condition and provide help and advice on food choices, eating and drinking when necessary.
- Record malnutrition risk category.
- Record need for special diets and follow local policy.

Obesity:

- Record presence of obesity. For those with underlying conditions, these are generally controlled before the treatment of obesity.

Re-assess subjects identified at risk as they move through care settings

Step 1 – BMI score (& BMI)



nes and pounds)

Weight	1.48	1.50	1.52	1.54	1.56	1.58	1.60	1.62	1.64	1.66	1.68	1.70	1.72	1.74	1.76	1.78	1.80	1.82	1.84	1.86	1.88	1.90
67	31	30	29	28	28	27	26	26	25	24	24	23	23	22	22	21	21	20	20	19	19	19
66	30	29	29	28	27	26	26	25	25	24	23	23	22	22	21	21	20	20	19	19	19	18
65	30	29	28	27	27	26	25	25	24	24	23	22	22	21	21	21	20	20	19	19	18	18
64	29	28	28	27	26	26	25	24	24	23	23	22	22	21	21	20	20	19	19	18	18	18
63	29	28	27	27	26	25	25	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17
62	28	28	27	26	25	25	24	24	23	22	22	21	21	20	20	19	19	19	18	18	18	17
61	28	27	26	26	25	24	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17	17
60	27	27	26	25	25	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17	17	17
59	27	26	26	25	24	24	23	22	22	21	21	20	20	19	19	19	18	18	17	17	17	16
58	26	26	25	24	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17	17	16	16
57	26	25	25	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17	17	16	16	16
56	26	25	24	24	23	22	22	21	21	20	20	19	19	18	18	18	17	17	17	16	16	16
55	25	24	24	23	23	22	21	21	20	20	19	19	18	18	18	17	17	17	16	16	16	15
54	25	24	23	23	22	22	21	21	20	20	19	19	18	18	17	17	17	16	16	16	15	15
53	24	24	23	22	22	21	21	20	20	19	19	18	18	18	17	17	16	16	16	15	15	15
52	24	23	23	22	21	21	20	20	19	19	18	18	18	17	17	16	16	16	15	15	15	14
51	23	23	22	22	21	20	20	19	19	19	18	18	17	17	16	16	16	15	15	15	14	14
50	23	22	22	21	21	20	20	19	19	18	18	17	17	17	16	16	15	15	15	14	14	14
49	22	22	21	21	20	20	19	19	18	18	17	17	17	16	16	15	15	15	14	14	14	14
48	22	21	21	20	20	19	19	18	18	17	17	17	16	16	15	15	15	14	14	14	14	13
47	21	21	20	20	19	19	18	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13
46	21	20	20	19	19	18	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13
45	21	20	19	19	18	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13	12
44	20	20	19	19	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13	12	12
43	20	19	19	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13	12	12	12
42	19	19	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13	12	12	12	12
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39	18	17	17	16	16	16	15	15	15	14	14	13	13	13	13	12	12	12	12	11	11	11
38	17	17	16	16	16	15	15	14	14	14	13	13	13	13	12	12	12	11	11	11	11	11
37	17	16	16	16	15	15	14	14	14	13	13	13	13	12	12	12	11	11	11	11	10	10
36	16	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	11	10	10	10
35	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	11	10	10	10	10
34	16	15	15	14	14	14	13	13	13	12	12	12	11	11	11	10	10	10	10	10	10	9

Height (m)

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Step 2 – Weight loss score

Weight before weight loss (kg)	SCORE 0 Wt Loss < 5%	SCORE 1 Wt Loss 5-10%	SCORE 2 Wt Loss > 10%
34 kg	<1.70	1.70 – 3.40	>3.40
36 kg	<1.80	1.80 – 3.60	>3.60
38 kg	<1.90	1.90 – 3.80	>3.80
40 kg	<2.00	2.00 – 4.00	>4.00
42 kg	<2.10	2.10 – 4.20	>4.20
44 kg	<2.20	2.20 – 4.40	>4.40
46 kg	<2.30	2.30 – 4.60	>4.60
48 kg	<2.40	2.40 – 4.80	>4.80
50 kg	<2.50	2.50 – 5.00	>5.00
52 kg	<2.60	2.60 – 5.20	>5.20
54 kg	<2.70	2.70 – 5.40	>5.40
56 kg	<2.80	2.80 – 5.60	>5.60
58 kg	<2.90	2.90 – 5.80	>5.80
60 kg	<3.00	3.00 – 6.00	>6.00
62 kg	<3.10	3.10 – 6.20	>6.20
64 kg	<3.20	3.20 – 6.40	>6.40
66 kg	<3.30	3.30 – 6.60	>6.60
68 kg	<3.40	3.40 – 6.80	>6.80
70 kg	<3.50	3.50 – 7.00	>7.00
72 kg	<3.60	3.60 – 7.20	>7.20
74 kg	<3.70	3.70 – 7.40	>7.40
76 kg	<3.80	3.80 – 7.60	>7.60
78 kg	<3.90	3.90 – 7.80	>7.80
80 kg	<4.00	4.00 – 8.00	>8.00
82 kg	<4.10	4.10 – 8.20	>8.20
84 kg	<4.20	4.20 – 8.40	>8.40
86 kg	<4.30	4.30 – 8.60	>8.60
88 kg	<4.40	4.40 – 8.80	>8.80
90 kg	<4.50	4.50 – 9.00	>9.00
92 kg	<4.60	4.60 – 9.20	>9.20
94 kg	<4.70	4.70 – 9.40	>9.40
96 kg	<4.80	4.80 – 9.60	>9.60
98 kg	<4.90	4.90 – 9.80	>9.80
100 kg	<5.00	5.00 – 10.00	>10.00
102 kg	<5.10	5.10 – 10.20	>10.20
104 kg	<5.20	5.20 – 10.40	>10.40
106 kg	<5.30	5.30 – 10.60	>10.60
108 kg	<5.40	5.40 – 10.80	>10.80
110 kg	<5.50	5.50 – 11.00	>11.00
112 kg	<5.60	5.60 – 11.20	>11.20
114 kg	<5.70	5.70 – 11.40	>11.40
116 kg	<5.80	5.80 – 11.60	>11.60
118 kg	<5.90	5.90 – 11.80	>11.80
120 kg	<6.00	6.00 – 12.00	>12.00
122 kg	<6.10	6.10 – 12.20	>12.20
124 kg	<6.20	6.20 – 12.40	>12.40
126 kg	<6.30	6.30 – 12.60	>12.60

Weight before weight loss (st lb)	SCORE 0 Wt Loss<5%	SCORE 1 Wt Loss 5-10%	SCORE 2 Wt Loss>10%
5st 4lb	<4lb	4lb – 7lb	>7lb
5st 7lb	<4lb	4lb – 8lb	>8lb
5st 11lb	<4lb	4lb – 8lb	>8lb
6st	<4lb	4lb – 8lb	>8lb
6st 4lb	<4lb	4lb – 9lb	>9lb
6st 7lb	<5lb	5lb – 9lb	>9lb
6st 11lb	<5lb	5lb – 10lb	>10lb
7st	<5lb	5lb – 10lb	>10lb
7st 4lb	<5lb	5lb – 10lb	>10lb
7st 7lb	<5lb	5lb – 11lb	>11lb
7st 11lb	<5lb	5lb – 11lb	>11lb
8st	<6lb	6lb – 11lb	>11lb
8st 4lb	<6lb	6lb – 12lb	>12lb
8st 7lb	<6lb	6lb – 12lb	>12lb
8st 11lb	<6lb	6lb – 12lb	>12lb
9st	<6lb	6lb – 13lb	>13lb
9st 4lb	<7lb	7lb – 13lb	>13lb
9st 7lb	<7lb	7lb – 13lb	>13lb
9st 11lb	<7lb	7lb – 1st 0lb	>1st 0lb
10st	<7lb	7lb – 1st 0lb	>1st 0lb
10st 4lb	<7lb	7lb – 1st 0lb	>1st 0lb
10st 7lb	<7lb	7lb – 1st 1lb	>1st 1lb
10st 11lb	<8lb	8lb – 1st 1lb	>1st 1lb
11st	<8lb	8lb – 1st 1lb	>1st 1lb
11st 4lb	<8lb	8lb – 1st 2lb	>1st 2lb
11st 7lb	<8lb	8lb – 1st 2lb	>1st 2lb
11st 11lb	<8lb	8lb – 1st 3lb	>1st 3lb
12st	<8lb	8lb – 1st 3lb	>1st 3lb
12st 4lb	<9lb	9lb – 1st 3lb	>1st 3lb
12st 7lb	<9lb	9lb – 1st 4lb	>1st 4lb
12st 11lb	<9lb	9lb – 1st 4lb	>1st 4lb
13st	<9lb	9lb – 1st 4lb	>1st 4lb
13st 4lb	<9lb	9lb – 1st 5lb	>1st 5lb
13st 7lb	<9lb	9lb – 1st 5lb	>1st 5lb
13st 11lb	<10lb	10lb – 1st 5lb	>1st 5lb
14st	<10lb	10lb – 1st 6lb	>1st 6lb
14st 4lb	<10lb	10lb – 1st 6lb	>1st 6lb
14st 7lb	<10lb	10lb – 1st 6lb	>1st 6lb
14st 11lb	<10lb	10lb – 1st 7lb	>1st 7lb
15st	<11lb	11lb – 1st 7lb	>1st 7lb
15st 4lb	<11lb	11lb – 1st 7lb	>1st 7lb
15st 7lb	<11lb	11lb – 1st 8lb	>1st 8lb
15st 11lb	<11lb	11lb – 1st 8lb	>1st 8lb
16st	<11lb	11lb – 1st 8lb	>1st 8lb
16st 4lb	<11lb	11lb – 1st 9lb	>1st 9lb
16st 7lb	<12lb	12lb – 1st 9lb	>1st 9lb

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