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BAPEN

(Licence number LIC2208)

The Malnutrition Universal Screening Tool ('MUST')



‘MUST’

MUST’ is a five-step screening tool to identify **adults**, who are malnourished, at risk of malnutrition (undernutrition), or obese. It also includes management guidelines which can be used to develop a care plan.

It is for use in hospitals, community and other care settings and can be used by all care workers.

This guide contains:

- A flow chart showing the 5 steps to use for screening and management
- BMI chart
- Weight loss tables
- Alternative measurements when BMI cannot be obtained by measuring weight and height.

The 5 ‘MUST’ Steps

STEP 1
Measure height and weight to get a BMI score using chart provided. *If unable to obtain height and weight, use the alternative procedures shown in this guide.*

STEP 2
Note percentage unplanned weight loss and score using tables provided.

STEP 3
Establish acute disease effect and score.

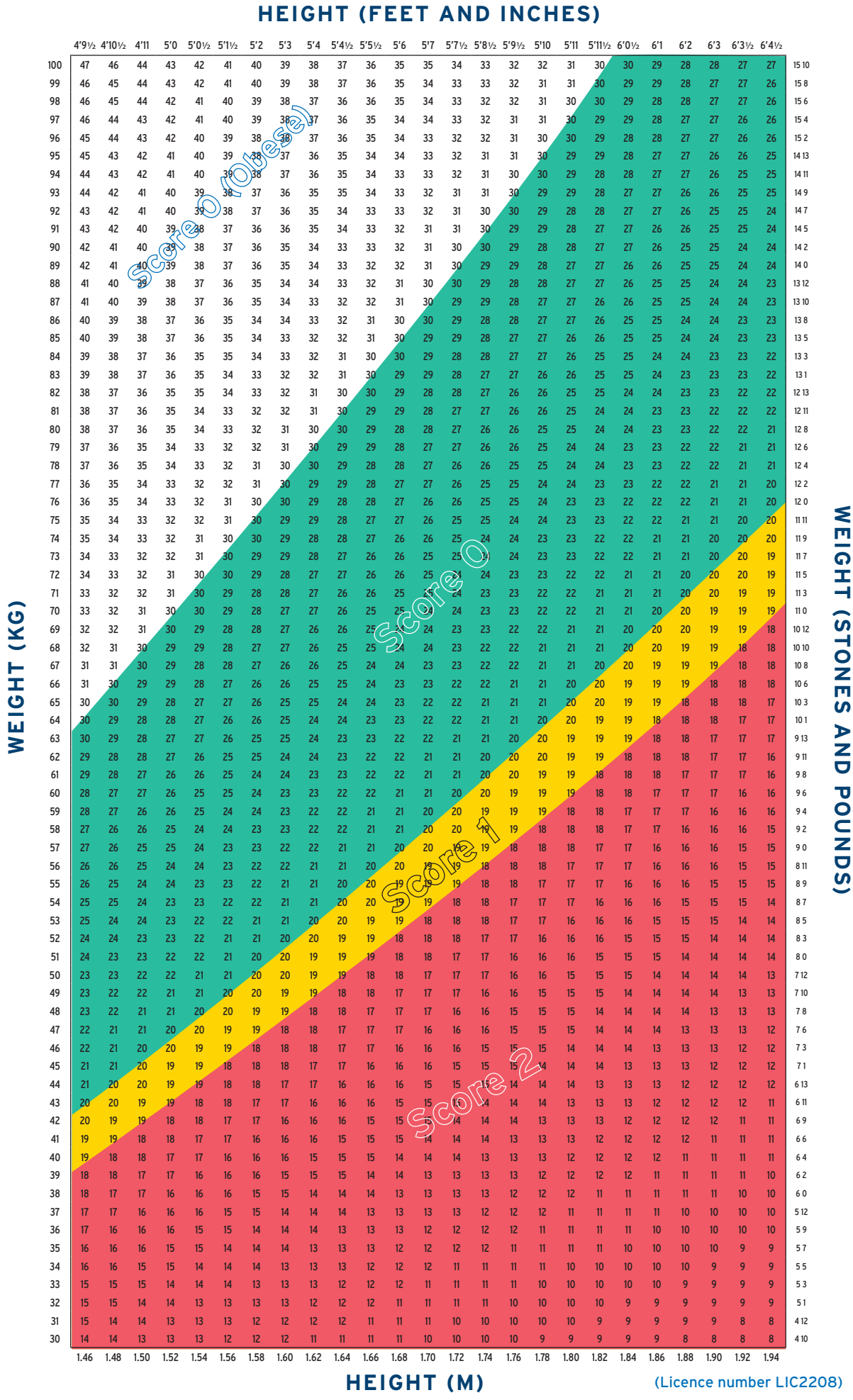
STEP 4
Add scores from steps 1, 2 and 3 together to obtain overall risk of malnutrition.

STEP 5
Use management guidelines and/or local policy to develop care plan.

Please refer to The ‘MUST’ Explanatory Booklet for more information when weight and height cannot be measured, and when screening patient groups in which extra care in interpretation is needed (e.g. those with fluid disturbances, plaster casts, amputations, critical illness and pregnant or lactating women). The booklet can also be used for training. See The ‘MUST’ Report for supporting evidence. Please note that ‘MUST’ has not been designed to detect deficiencies or excessive intakes of vitamins and minerals and is of **use only in adults**.

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Step 1 – BMI score (& BMI)



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Step 1
BMI score

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

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

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

Acute disease effect is unlikely to apply outside hospital. See 'MUST' Explanatory Booklet for further information

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 adequate – little concern and repeat screening
  - Hospital – weekly
  - Care Home – at least monthly
  - Community – at least every 2-3 months
- If inadequate – clinical concern – follow local policy, set goals, improve and increase overall nutritional intake, monitor and review care plan regularly

2 or more
HIGH RISK
*Treat**

- Refer to dietitian, Nutritional Support Team or implement local policy
- Set goals, 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

See The 'MUST' Explanatory Booklet for further details and The 'MUST' Report for supporting evidence.

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Step 2 – Weight loss score

CURRENT WEIGHT

kg	Score 0 Wt loss < 5% — Less than (kg)	Score 1 Wt loss 5 - 10% — Between (kg)	Score 2 Wt loss > 10% — More than (kg)
	WEIGHT LOSS IN LAST 3 TO 6 MONTHS		
30	1.6	1.6 - 3.3	3.3
31	1.6	1.6 - 3.4	3.4
32	1.7	1.7 - 3.6	3.6
33	1.7	1.7 - 3.7	3.7
34	1.8	1.8 - 3.8	3.8
35	1.8	1.8 - 3.9	3.9
36	1.9	1.9 - 4.0	4.0
37	1.9	1.9 - 4.1	4.1
38	2.0	2.0 - 4.2	4.2
39	2.1	2.1 - 4.3	4.3
40	2.1	2.1 - 4.4	4.4
41	2.2	2.2 - 4.6	4.6
42	2.2	2.2 - 4.7	4.7
43	2.3	2.3 - 4.8	4.8
44	2.3	2.3 - 4.9	4.9
45	2.4	2.4 - 5.0	5.0
46	2.4	2.4 - 5.1	5.1
47	2.5	2.5 - 5.2	5.2
48	2.5	2.5 - 5.3	5.3
49	2.6	2.6 - 5.4	5.4
50	2.6	2.6 - 5.6	5.6
51	2.7	2.7 - 5.7	5.7
52	2.7	2.7 - 5.8	5.8
53	2.8	2.8 - 5.9	5.9
54	2.8	2.8 - 6.0	6.0
55	2.9	2.9 - 6.1	6.1
56	2.9	2.9 - 6.2	6.2
57	3.0	3.0 - 6.3	6.3
58	3.1	3.1 - 6.4	6.4
59	3.1	3.1 - 6.6	6.6
60	3.2	3.2 - 6.7	6.7
61	3.2	3.2 - 6.8	6.8
62	3.3	3.3 - 6.9	6.9
63	3.3	3.3 - 7.0	7.0
64	3.4	3.4 - 7.1	7.1

kg	Score 0 Wt loss < 5% — Less than (kg)	Score 1 Wt loss 5 - 10% — Between (kg)	Score 2 Wt loss > 10% — More than (kg)
	WEIGHT LOSS IN LAST 3 TO 6 MONTHS		
65	3.4	3.4 - 7.2	7.2
66	3.5	3.5 - 7.3	7.3
67	3.5	3.5 - 7.4	7.4
68	3.6	3.6 - 7.6	7.6
69	3.6	3.6 - 7.7	7.7
70	3.7	3.7 - 7.8	7.8
71	3.7	3.7 - 7.9	7.9
72	3.8	3.8 - 8.0	8.0
73	3.8	3.8 - 8.1	8.1
74	3.9	3.9 - 8.2	8.2
75	3.9	3.9 - 8.3	8.3
76	4.0	4.0 - 8.4	8.4
77	4.1	4.1 - 8.6	8.6
78	4.1	4.1 - 8.6	8.7
79	4.2	4.2 - 8.7	8.8
80	4.2	4.2 - 8.9	8.9
81	4.3	4.3 - 9.0	9.0
82	4.3	4.3 - 9.1	9.1
83	4.4	4.4 - 9.2	9.2
84	4.4	4.4 - 9.3	9.3
85	4.5	4.5 - 9.4	9.4
86	4.5	4.5 - 9.6	9.6
87	4.6	4.6 - 9.7	9.7
88	4.6	4.6 - 9.8	9.8
89	4.7	4.7 - 9.9	9.9
90	4.7	4.7 - 10.0	10.0
91	4.8	4.8 - 10.1	10.1
92	4.8	4.8 - 10.2	10.2
93	4.9	4.9 - 10.3	10.3
94	4.9	4.9 - 10.4	10.4
95	5.0	5.0 - 10.6	10.6
96	5.1	5.1 - 10.7	10.7
97	5.1	5.1 - 10.8	10.8
98	5.2	5.2 - 10.9	10.9
99	5.2	5.2 - 11.0	11.0

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Alternative measurements and considerations

Step 1: BMI (body mass index)

If height cannot be measured

- Use recently documented or self-reported height (if reliable and realistic).
- If the subject does not know or is unable to report their height, use one of the alternative measurements to estimate height (ulna, knee height or demispan).

Step 2: Recent unplanned weight loss

If recent weight loss cannot be calculated, use self-reported weight loss (if reliable and realistic).

Subjective criteria

If height, weight or BMI cannot be obtained, the following criteria which relate to them can assist your professional judgement of the subject's nutritional risk category. Please note, these criteria should be used collectively not separately as alternatives to steps 1 and 2 of 'MUST' and are not designed to assign a score. Mid upper arm circumference (MUAC) may be used to estimate BMI category in order to support your overall impression of the subject's nutritional risk.

1. BMI

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

2. Unplanned weight loss

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

3. Acute disease effect

Acutely ill and no nutritional intake or likelihood of no intake for more than 5 days.

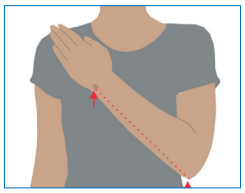
Further details on taking alternative measurements, special circumstances and subjective criteria can be found in ***The 'MUST' Explanatory Booklet***. A copy can be downloaded at www.bapen.org.uk or purchased from the BAPEN office. The full evidence-base for 'MUST' is contained in ***The 'MUST' Report*** and is also available for purchase from the BAPEN office.

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Alternative measurements: instructions and tables

If height cannot be obtained, use length of forearm (ulna) to calculate height using tables below. (See The 'MUST' Explanatory Booklet for details of other alternative measurements (knee height and demispan) that can also be used to estimate height).

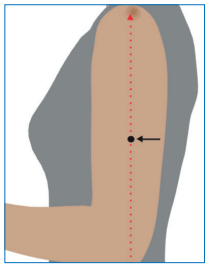
Estimating height from ulna length



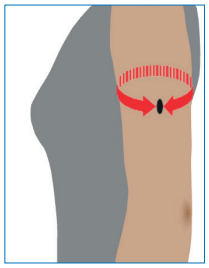
Measure between the point of the elbow (olecranon process) and the midpoint of the prominent bone of the wrist (styloid process) (left side if possible).

Height (m)	men (<65 years)	1.94	1.93	1.91	1.89	1.85	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	1.79	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	29.5	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	1.77	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	1.76	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	1.60	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	1.57	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	22.5	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	1.58	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	1.53	1.53	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.40

Estimating BMI category from mid upper arm circumference (MUAC)



The subject's left arm should be bent at the elbow at a 90 degree angle, with the upper arm held parallel to the side of the body. Measure the distance between the bony protrusion on the shoulder (acromion) and the point of the elbow (olecranon process). Mark the mid-point.



Ask the subject to let arm hang loose and measure around the upper arm at the mid-point, making sure that the tape measure is snug but not tight.

If MUAC is <23.5 cm, BMI is likely to be <20 kg/m2.
If MUAC is >32.0 cm, BMI is likely to be >30 kg/m2.

The use of MUAC provides a general indication of BMI and is not designed to generate an actual score for use with 'MUST'. For further information on use of MUAC please refer to *The 'MUST' Explanatory Booklet*.

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Overcoming challenges in Malnutrition Universal Screening Tool completion

Barriers to accurate **MUST** completion[2,32,2]



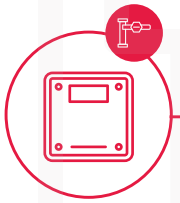
Evaluating BMI data is not always straightforward

- Calculations and comparisons of point BMI values can be inaccurate



Imprecise height measurements can bias results

- Mental conversion of imperial to metric units can add errors
- Approximating height based on ulna length can be inexact, especially in older people



Short-term weight-change patterns can be misleading

- The optimal time point for assessing weight change is unclear
- Assessing weight changes over too short a period may overlook cases of malnutrition



The acute disease effect score is not relevant in all settings

- Patients with long-term conditions and/or temporary loss of appetite can be assigned incorrect scores

BMI, body mass index; HCP, healthcare professional; MUST, Malnutrition Universal Screening Tool.

1. Irish Nutrition and Dietetic Institute (INDI). 2009. Available at: https://www.indi.ie/images/public docs/956_ INDI Fact sheet MUST June 09.pdf (Accessed: November 2025).
2. Smith, A. Br. J. Community Nurs. 19 (Suppl. 11): S28-S31 (2014). 3. Butler, R., McClinchy, J., Morreale-Parker, C., et al. Clin. Nutr. ESPEN 22: 112-115 (2017). https://doi.org/10.1016/.clnesp.2017.07.078.

For healthcare professionals only. This infographic was instigated, created and funded by Fresenius Kabi.

MUST is a five-step tool used to identify patients at risk of malnutrition. Healthcare professionals may encounter barriers in clinical practice that prevent accurate completion of MUST.

Solutions for accurate **MUST** completion[1]



Use BMI range charts

- Classify patients by BMI categories rather than precise scores
- Use visual charts to determine BMI range



Base height estimates on validated reference charts

- Use tables for imperial to metric conversion
- Use separate male and female reference charts for ulna length



Compare previous and current weights directly

- Focus on weight change over a minimum of 6 months
- Refer to validated charts to streamline calculations



Limit the acute disease effect score to zero

- This measure has limited practical value outside of hospital settings

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Notes

Notes

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