



## Nutrition Assessment, Counselling and Support (NACS)



**JOB AIDS**  
**for Health Facility-Based Service Providers**  
2016

**For further information, please contact:**

The Managing Director  
Tanzania Food and Nutrition Centre  
22 Barack Obama Avenue  
S.L.P. 977  
Dar es Salaam  
Tanzania

Tel: +255 (0) 22 2118137/9  
Fax: +255 (0) 22 2116713  
Email: [info@lishe.org](mailto:info@lishe.org)  
Website: [www.lishe.org](http://www.lishe.org)

ISBN 978-9976-910-61-2

**Cover photo:** USAID NuLifeProject through University Research Co., LLC

**Recommended citation:**

Tanzania Food and Nutrition Centre (TFNC). 2016. *Nutrition Assessment, Counselling and Support (NACS): Job Aids for Health Facility-Based Service Providers*. Dar es Salaam, Tanzania: TFNC.

**© Tanzania Food and Nutrition Centre 2016**

All rights reserved. This book may not be copied, translated, printed or produced in any form without the permission of the TFNC.



This publication is made possible by the generous support of the American people through the support of the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, U.S. Agency for International Development (USAID), USAID/Tanzania and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) under terms of Cooperative Agreement No. AID-OAA-A-12-00005, through the Food and Nutrition Technical Assistance III Project (FANTA), managed by FHI 360. The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government.

---

# LIST OF JOB AIDS

---

1. A Balanced Diet .....	1
2. The Vicious Cycle of Poor Nutrition and Infection .....	3
3. How to Assess Bilateral Pitting Oedema .....	4
4. How to Weigh Adults and Young Children .....	5
5. How to Weigh Children up to 25 Kg .....	6
6. How to Measure Length and Height.....	7
7. How to Find Weight-for-Length/Height for Children 0 to 59 Months of Age .....	9
8. How to Find Weight-for-Age for Children from Birth to 59 Months of Age Using the Tanzania Child Growth Card (RCH1) .....	14
9. How to Find Height-for-Age for Children from Birth to 59 Months of Age .....	16
10. How to Find Body Mass Index (BMI) for Adults .....	19
11. How to Find BMI-for-Age for Children and Adolescents .....	21
12. How to Measure Mid-Upper Arm Circumference (MUAC) .....	27
13. Algorithm for Managing Malnutrition in Children 6 Months to 14 Years of Age.....	29
14. Algorithm for Managing Malnutrition in Adolescents 15–17 Years of Age and Adults .....	32
15. How to Wash Your Hands .....	35
16. Critical Times to Wash Your Hands with Soap or Ash .....	36
17. How to Take Care of Drinking and Cooking Water.....	37
18. Entry, Prescription and Exit Criteria for Specialised Food Products.....	38
19. How to Feed Ready-to-Use Therapeutic Food to a Malnourished Child .....	40
20. Fortified-Blended Food or Ready-to-Use Supplementary Food .....	41
21. How to Store and Dispose of Specialised Food Product Packets.....	42
22. Recipes for Non-Commercial Therapeutic Milks.....	43
23. NACS Protocol.....	46

---

## ABBREVIATIONS AND ACRONYMS

---

ARV	antiretroviral medication
AIDS	acquired immune deficiency syndrome
BMI	body mass index
cm	centimetre(s)
FBF	fortified-blended food
g	gram(s)
HIV	human immunodeficiency virus
kcal	kilocalorie(s)
kg	kilogram(s)
m <sup>2</sup>	metres squared
MAM	moderate acute malnutrition
ml	millilitre(s)
MUAC	mid-upper arm circumference
MVC	most vulnerable children
NACS	nutrition assessment, counselling and support
OI	opportunistic infection
RCH	reproductive and child health
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
TB	tuberculosis
WHZ	weight-for-height z-score
WHO	World Health Organisation



---

# ACKNOWLEDGEMENTS

---

The *Nutrition Assessment, Counselling and Support (NACS) Facilitator's Guide for Training Facility-Based Service Providers* is part of a set of NACS training materials that is a key component of the commitment of the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) to build the capacity of health care providers and health facility managers to integrate quality nutrition services into routine care and treatment.

The Tanzania Food and Nutrition Centre (TFNC) and the Food and Nutrition Technical Assistance III Project (FANTA), managed by FHI 360, were at the forefront in developing these materials. The Ministry would like to extend its appreciation to these organizations for their work in standardising nutrition services in clinical and community settings.

In addition, this guide and all Tanzania NACS materials benefited from the practical experience gained from TFNC's implementation of Food by Prescription in Tanzania between 2008 and 2010 and from FANTA's global work on NACS in Côte d'Ivoire, the Democratic Republic of Congo, Ethiopia, Ghana, Haiti, Kenya, Malawi, Mozambique, Namibia, Uganda, Vietnam and Zambia.

The following people contributed valuable time and expertise to design and refine the NACS package:

- Grey Saga, Program Manager, USAID/Tanzania
- Mary Materu, Founder, Centre for Counselling, Nutrition and Health Care (COUNSENUTH)
- Helen Semu, Nutrition Focal Person, MOHCGEC
- Dr David Kombo, National Infant Feeding Trainer and Paediatrician, Muhimbili National Hospital
- Dr Eric van Praag, Senior Regional Advisor, FHI 360
- Zawadiel Melchior Hillu, PMTCT Coordinator, Kilimanjaro Christian Medical Centre (KCMC)
- Dr Fadhili Festo Mlagalila, Lecturer, Tumaini University, and Pediatrician, KCMC
- Dr Godfrey Braison Mariki, CTC In-charge, Majengo Health Centre
- Zohra Lukmanji, Registered Dietician
- Grace Muro, Nutrition Manager, World Education, Inc./ Tanzania
- Dr David Kombo Pediatrician, Muhimbili National Hospital
- Dr Athuman Mambo, Medical Officer, Lindi Regional Hospital
- Dr Selemani Msangi, Regional AIDS Control Coordinator, Tanga Regional Hospital

---

## ACKNOWLEDGEMENTS (CONTINUED)

---

- Vumilia Mbugi Nutrition Officer, Mkuranga Medical Centre
- Elias Mwinuka, Health Specialist, Compassion International/Tanzania
- Janeth Bushiri, M&E Coordinator, Tunajali/Delloite
- Theodora Kiwale, Quality Improvement Advisor, Elizabeth Glaser Pediatric AIDS Foundation/Tanzania
- Dr Stella Kasindi, Senior Quality Improvement Advisor, University Research Corporation, LLC/Tanzania

### TFNC

- Dr Godwin Ndossi, former Managing Director
- Dr Sabas Kimboka, Director, Community Health Department
- Dr Joyceline Kaganda, Acting Managing Director
- Francis Modaha, Senior Research Officer, Food Science
- Gelagister Gwarasa, Research Officer, Nutrition Training
- Hamida Mbilikila, Research Officer, Nutrition Training, Clinician
- Luitfruid Nally, Research Officer
- Magret Rwenyagira, Research Officer
- Bupe Ntoga, Senior Research Officer
- Hilda Missano, Retired Director, Nutrition Training
- Jamila Mwankemwa, Research Officer, Nutritionist
- Anna John Nzagira, Research Officer, Nutritionist, Clinician
- Juliet Shine, Research Officer, Nutritionist

### FANTA

- Dr Anne Swindale, former Project Director
- Sandra Remancus, Project Director
- Dr Deborah Ash, Program Manager/Tanzania
- Wendy Hammond, Project Manager, Nutrition and Infectious Disease
- Tumaini Charles, Technical Advisor/Tanzania
- Caroline Mshanga, Program Officer/Tanzania
- Dr Robert Mwadime, former Regional Nutrition Advisor
- Dr Alison Tumilowicz-Torres, former Technical Advisor, Nutrition
- Hedwig Deconinck, former Senior Emergency Nutrition Advisor

The MOHCDGEC would also like to acknowledge the use of graphics and messages from the U.S. Agency for International Development (USAID)-supported NuLife (Food and Nutrition Interventions) Project in Uganda, managed by University Research Co., LLC, and from the USAID-supported WASHplus Project in collaboration with Plan International.

Finally, the MOHCDGEC would like to acknowledge the financial support of USAID/Tanzania.

# 1 A BALANCED DIET

Eat a variety of foods from all **five food groups** below to get all the nutrients the body needs to stay strong and fight infection. No single food contains all the nutrients you need. When planning a meal, choose at least one food from each food group. Eat at least three meals and two snacks a day.



**Cereals, green bananas, roots and tubers** (carbohydrates for energy)

Examples: Maize, rice, millet, cassava, taro (*magimbi*), white potatoes, yams, sweet potatoes



**Pulses, nuts and animal-source food** (proteins for body building)

Examples: Beans, peas, nuts, meat, fish, eggs, milk, sardines, insects (*senene, kumbikumbi*)



**Fruit** (vitamins and minerals for protection)

Examples: Pawpaw, mango, orange, pineapple, *mabungo, ukwaju*, many others



**Vegetables** (vitamins and minerals for protection)

Examples: Amaranth, sweet potato leaves, okra, pumpkins, tomatoes, *mlenda, mchungu, figiri, mwidu*



**Sugar, honey, fats and oil** (in small amounts)

Examples: Sugar; honey; coconut, sunflower, corn and palm oil

*Pictures: Centre for Counselling, Nutrition and Health Care (COUNSENUTH)*

---

## A BALANCED DIET (*CONTINUED*)

---

### Examples of balanced meals and nutritious snacks:

#### BREAKFAST

Piece of fruit  
Boiled cassava, banana or potato  
Boiled carrots or cucumbers  
Fruit juice  
Treated (boiled or filtered) water

#### MID-MORNING SNACK (choose one)

Piece of fruit  
Roasted cassava or sweet potato  
Roasted nuts  
Cucumber or carrot  
Treated (boiled or filtered) water

#### LUNCH

*Ugali* or rice  
Meat or beans or *dagaa*  
Vegetables cooked in oil  
Papaya or other fruit  
Treated (boiled or filtered) water

#### AFTERNOON SNACK

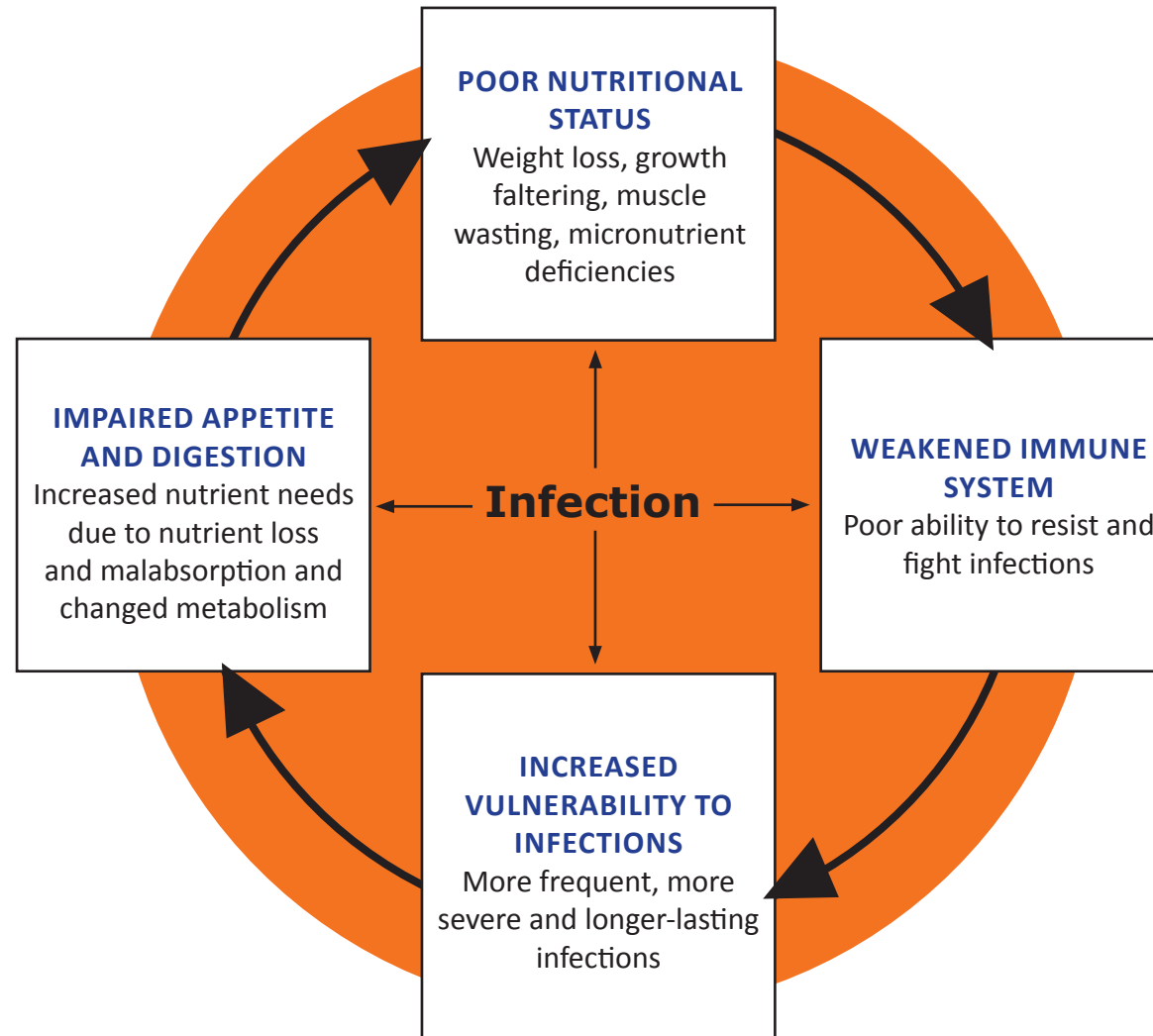
Nuts

#### DINNER

*Ugali* or green bananas  
Meat, beans or fish  
Seasonal vegetables cooked in oil  
Guava or baobab fruit  
Treated (boiled or filtered) water

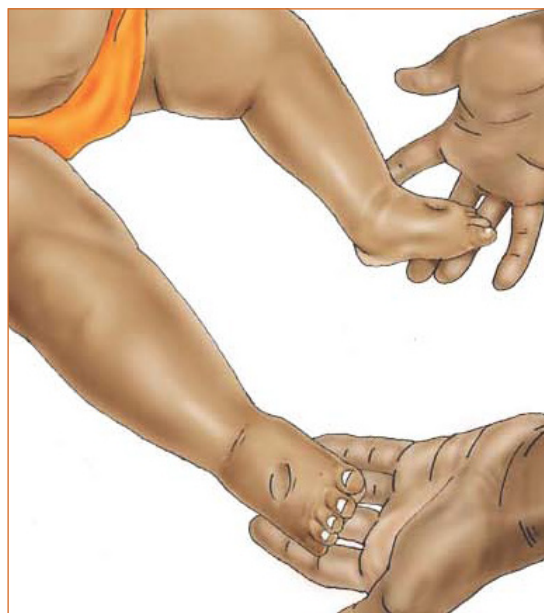
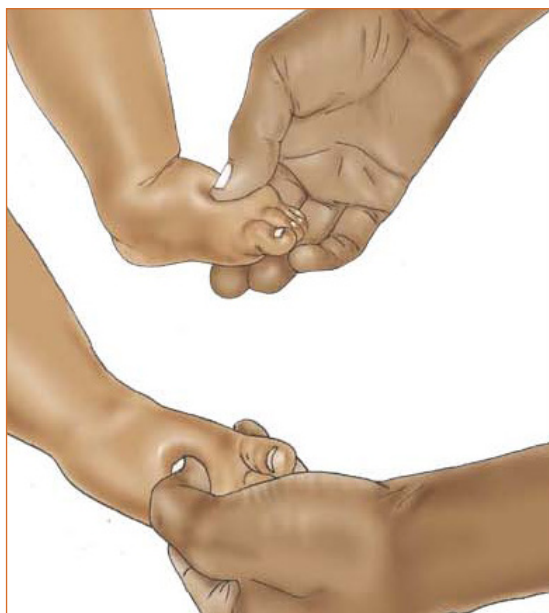
#### HEALTHY DRINKS

Treated (boiled or filtered) water  
Fermented milk  
Soya drink  
Rosella drink  
*Tangawizi* drink  
Fermented cereal drink (*togwa*)  
Lemongrass drink (*mchaichai*)  
Coconut water (*madafu*)



### 3 HOW TO ASSESS BILATERAL PITTING OEDEMA

- Oedema is a sign of severe acute malnutrition (SAM) only if it is in either both feet or both legs.
- Press with your thumbs on both feet for 3 full seconds and then remove your thumbs.
- If the skin stays depressed on **both** feet, the client has **grade + (mild)** bilateral pitting oedema.
- Do the same test on the lower legs, hands, and lower arms. If the skin stays depressed in these areas, look for swelling in the face, especially around the eyes.
- If there is no swelling in the face, the client has **grade ++ (moderate)** bilateral pitting oedema. If there is swelling in the face, the client has **grade +++ (severe)** bilateral pitting oedema.
- Rule out non-nutritional causes of oedema (e.g., congestive heart disease, lymphatic disorders, kidney disease).



Grade	Definition
Absent or 0	No bilateral pitting oedema
+	<b>Mild</b> (in both feet or ankles)
++	<b>Moderate</b> (in both feet plus both lower legs, both hands or both lower arms)
+++	<b>Severe</b> (generalised, in both feet, both legs, both hands, both arms and face)

## 4 HOW TO WEIGH ADULTS AND YOUNG CHILDREN



### Adults

1. Re-zero the scale.
2. Ask the client to take off shoes, hat, scarf and head wrap and remove everything from pockets.
3. Ask the client to stand straight and unassisted on the centre of the scale.
4. Stand in front of the scale to read the measurement.
5. Record the weight to the nearest 100 g.



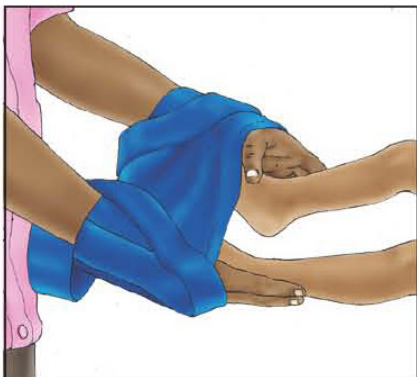
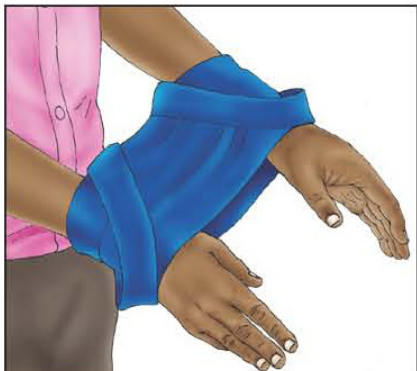
### Infants and young children

1. To weigh an **infant** on a scale, first weigh the caregiver and then weigh the infant with the caregiver. Subtract the caregiver's weight to get the infant's weight.
2. To weigh a **child** on a scale, undress the child completely. Put a soft cloth on the scale to protect the child from the hard surface. Stand in front of the scale to read the weight when the child is completely still. Clean and re-zero the scale after each weighing.



## 5 HOW TO WEIGH CHILDREN UP TO 25 KG

1. Use a hanging scale checked regularly against a known weight. If the measurement is off more than 10 g, change the spring or replace the scale.
2. Hook the scale to a tripod or a stick held horizontally at eye level by two people.
3. Hang the weighing pants from the lower hook of the scale. Make sure the scale arrow is at zero with the weighing pants attached (“zero the scale”). Use a plastic bucket or blanket instead of the weighing pants if a child has skin lesions/sores or the pants are difficult to keep clean.



4. Undress the child completely and place her or him in the weighing pants. Make sure one of the child's arms passes in between the straps to prevent the child from falling.
5. Make sure the child hangs freely and is not holding on to anything.
6. When the child is settled and the arrow is steady, read aloud the child's weight **at eye level** in kg to the nearest 100 g (for example, 6.4 kg).
7. Ask another health worker to repeat the weight for verification and record it.

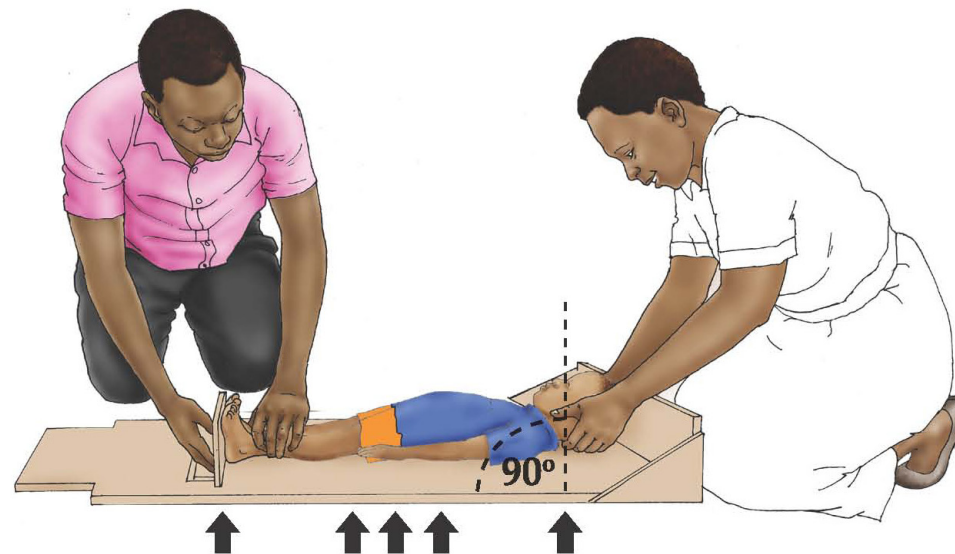




## 6 HOW TO MEASURE LENGTH AND HEIGHT

**Measure length for children who are under 2 years of age or less than 85 cm long or who cannot be measured standing.**

1. Place the length board on a table or the ground.
2. Remove the child's footwear and any head covering.
3. Place the child on her or his back in the middle of the board with arms at the sides and feet at right angles to the board. The heels, knees, buttocks, back of the head and shoulders should touch the board.
4. Gently hold the child's head so eyes point straight up. Gently bring the top of the head to the fixed end of the board.
5. Gently hold the child's ankles or knees. With the other hand, slide the moveable foot piece until both heels touch it.
6. Immediately remove the child's feet from the foot piece to prevent kicking, holding the footboard securely with the other hand.
7. Read the measurement aloud to the nearest 0.1 cm.
8. Ask another health worker to repeat the measurement for verification and record it.

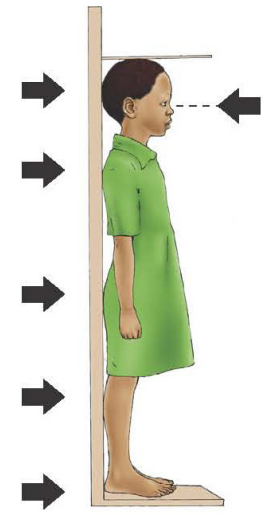
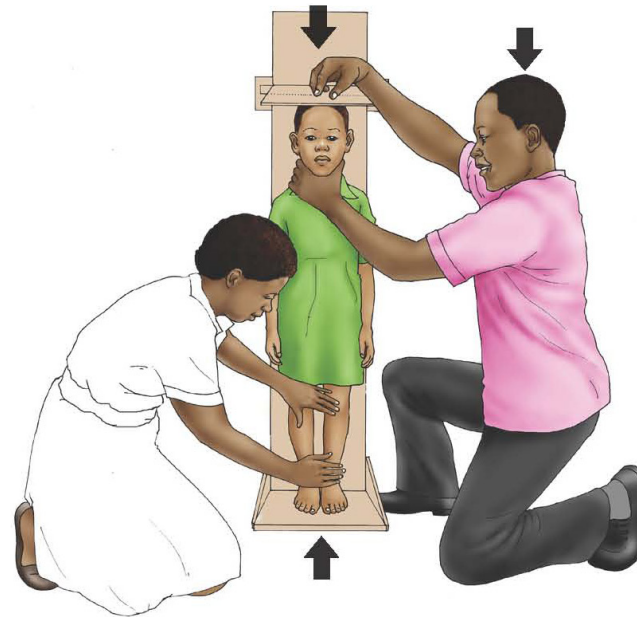


- Measure length for children < 85 cm long.
- Measure height for children ≥ 85 cm tall.
- If children > 84.9 cm tall cannot stand to have height measured, measure length and subtract 0.7 cm to give the height.

# HOW TO MEASURE LENGTH AND HEIGHT (*CONTINUED*)

## Measure height for children 2 years and older or 85 cm or taller and for adults.

1. Use a height board (shown in the picture) or fasten a non-stretchable tape measure securely to a wall.
2. Place the height board vertically on a flat surface.
3. Remove the client's shoes and headwear.
4. Make sure the shoulder blades, buttocks and heels touch the vertical surface of the board. The feet should be flat on the floor, close together and touching the back of the board. The legs and back should be straight, with arms at the sides. The shoulders should be relaxed and touching the board. The head need not touch the board.
5. Ask the client to stand straight and tall and look straight ahead.
6. Gently hold the client's head so she or he is looking straight ahead. Bring the moveable head piece to rest firmly on the top of the client's head. Ask another health worker to hold the client's feet.
7. Read the measurement aloud to the nearest 0.1 cm.
8. Ask another health worker to repeat the measurement for verification and record it.



## 7

## HOW TO FIND WEIGHT-FOR-LENGTH/HEIGHT FOR CHILDREN 0–59 MONTHS OF AGE

A z-score describes how far and in what direction a person's anthropometric measurement differs from the median in the 2006 WHO Child Growth Standards for boys and girls.

Weight-for-height z-score (WHZ) compares a child's weight to the weight of a child of the same length/height and sex to classify the child's nutritional status.

Measure length for children under 2 years of age or less than 87 cm long. Measure height for children 2 years or older or 87 cm or taller<sup>1</sup>. Recumbent length is on average 0.7 cm more than standing height. Although the difference is not important for individual children, correct by subtracting 0.7 cm from all lengths greater than 86.9 cm if height cannot be measured.

There are separate WHO Child Growth Standards for boys and girls. There are separate WHZ tables for girls and boys and separate tables for length for children 0–23 months of age and for height for children 24–59 months of age. The left-hand column in each table shows length or height in cm. The z-score describes how far and in what direction a person's anthropometric measurement differs from the median in the 2006 WHO Child Growth Standards for boys and girls.

<b>Red:</b> Severe acute malnutrition (SAM)	<b>Light purple:</b> Overweight
<b>Yellow:</b> Moderate acute malnutrition (MAM)	<b>Dark purple:</b> Obesity
<b>Green:</b> Normal nutritional status	

<sup>1</sup>Tanzania's 2014 *Management of Acute Malnutrition Training Manual: Facilitator's Guide* uses the pre-2006 National Center for Health Statistics (NCHS) median height for 2-year-olds of 85 cm, but this was superseded by the median height of 87 cm in the 2006 WHO Child Growth Standards.

---

## HOW TO FIND WEIGHT-FOR-LENGTH/HEIGHT FOR CHILDREN 0–59 MONTHS OF AGE (*CONTINUED*)

---

To use the WHZ tables to classify nutritional status:

1. Find the correct table for the child's age (0–23 months or 24–59 months). Measure children 0–23 months of age or less than 87 cm long lying down (length). Measure children 24–59 months of age or taller than 87 cm standing up (height).
2. Find the figure closest to the child's length/height in the left-hand column.
3. If the child's length or height falls between two numbers, round up or down. For example, if the length is 45.2 cm, round down to 45. If the length is 45.6 cm, round up to 46.
4. Run your finger straight across to find the child's weight.
5. Look at the top of that column to find the child's nutritional status.

**BOYS 0–23 months, weight-for-length**

Length (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
45	0–1.8	1.9	2.1–3.0	3.1–3.3	> 3.3
46	0–1.9	2.0–2.1	2.2–3.1	3.2–3.5	> 3.5
47	0–2.0	2.1–2.2	2.3–3.3	3.4–3.7	> 3.7
48	0–2.2	2.3–2.4	2.5–3.6	3.7–3.9	> 3.9
49	0–2.3	2.4–2.5	2.6–3.8	3.9–4.2	> 4.2
50	0–2.5	2.6–2.7	2.8–4.0	4.1–4.4	> 4.4
51	0–2.6	2.7–2.9	3.0–4.2	4.3–4.7	> 4.7
52	0–2.8	2.9–3.1	3.2–4.5	4.6–5.0	> 5.0
53	0–3.0	3.1–3.3	3.4–4.8	4.9–5.3	> 5.3
54	0–3.2	3.3–3.5	3.6–5.1	5.2–5.6	> 5.6
55	0–3.5	3.6–3.7	3.8–5.4	5.5–6.0	> 6.0
56	0–3.7	3.8–4.0	4.1–5.8	5.9–6.3	> 6.3
57	0–3.9	4.0–4.2	4.3–6.1	6.2–6.7	> 6.7
58	0–4.2	4.3–4.5	4.6–6.4	6.5–7.1	> 7.1
59	0–4.4	4.5–4.7	4.8–6.8	6.9–7.4	> 7.4
60	0–4.6	4.7–5.0	5.1–7.1	7.2–7.8	> 7.8
61	0–4.8	4.9–5.2	5.3–7.4	7.5–8.1	> 8.1
62	0–5.0	5.1–5.5	5.6–7.7	7.8–8.5	> 8.5
63	0–5.2	5.3–5.7	5.8–8.0	8.1–8.8	> 8.8
64	0–5.4	5.5–5.9	6.0–8.3	8.4–9.1	> 9.1
65	0–5.6	5.7–6.1	6.2–8.6	8.7–9.4	> 9.4
66	0–5.8	5.9–6.3	6.4–8.9	9.0–9.7	> 9.7
67	0–6.0	6.1–6.5	6.6–9.2	9.3–10.0	> 10.0
68	0–6.2	6.3–6.7	6.8–9.4	9.5–10.3	> 10.3
69	0–6.4	6.5–6.9	7.0–9.7	9.8–10.6	> 10.6
70	0–6.5	6.6–7.1	7.2–10.0	10.1–10.9	> 10.9
71	0–6.7	6.8–7.3	7.4–10.2	10.3–11.2	> 11.2
72	0–6.9	7.0–7.5	7.6–10.5	10.6–11.5	> 11.5
73	0–7.1	7.2–7.6	7.7–10.8	10.9–11.8	> 11.8
74	0–7.2	7.3–7.8	7.9–11.0	11.1–12.1	> 12.1
75	0–7.4	7.5–8.0	8.1–11.3	11.4–12.3	> 12.3
76	0–7.5	7.6–8.2	8.3–11.5	11.6–12.6	> 12.6
77	0–7.7	7.8–8.3	8.4–11.7	11.8–12.8	> 12.8
78	0–7.8	7.9–8.5	8.6–12.0	12.1–13.1	> 13.1
79	0–8.0	8.1–8.6	8.7–12.2	12.3–13.3	> 13.3
80	0–8.1	8.2–8.8	8.9–12.4	12.5–13.6	> 13.6
81	0–8.3	8.4–9.0	9.1–12.6	12.7–13.8	> 13.8
82	0–8.4	8.5–9.1	9.2–12.8	12.9–14.0	> 14.0
83	0–8.6	8.7–9.3	9.4–13.1	13.2–14.3	> 14.3
84	0–8.8	8.9–9.5	9.6–13.3	13.4–14.6	> 14.6
85	0–9.0	9.1–9.7	9.8–13.6	13.7–14.9	> 14.9
86	0–9.2	9.3–9.9	10.0–13.9	14.0–15.2	> 15.2
87	0–9.4	9.5–10.1	10.2–14.2	14.3–15.5	> 15.5
88	0–9.6	9.7–10.4	10.5–14.5	14.6–15.8	> 15.8
89	0–9.8	9.9–10.6	10.7–14.7	14.8–16.1	> 16.1

**GIRLS 0–23 months, weight-for-length**

Length (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
45	0–1.8	1.9–2.0	2.1–3.0	3.1–3.3	> 3.3
46	0–1.9	2.0–2.1	2.2–3.2	3.3–3.5	> 3.5
47	0–2.1	2.2–2.3	2.4–3.4	3.5–3.7	> 3.7
48	0–2.2	2.3–2.4	2.5–3.6	3.7–4.0	> 4.0
49	0–2.3	2.4–2.5	2.6–3.8	3.9–4.2	> 4.2
50	0–2.5	2.6–2.7	2.8–4.0	4.1–4.5	> 4.5
51	0–2.7	2.8–2.9	3.0–4.3	4.4–4.8	> 4.8
52	0–2.8	2.9–3.1	3.2–4.6	4.7–5.1	> 5.1
53	0–3.0	3.1–3.3	3.4–4.9	5.0–5.4	> 5.4
54	0–3.2	3.3–3.5	3.6–5.2	5.3–5.7	> 5.7
55	0–3.4	3.5–3.7	3.8–5.5	5.6–6.1	> 6.1
56	0–3.6	3.7–3.9	4.0–5.8	5.9–6.4	> 6.4
57	0–3.8	3.9–4.2	4.3–6.1	6.2–6.8	> 6.8
58	0–4.0	4.1–4.4	4.5–6.5	6.6–7.1	> 7.1
59	0–4.2	4.3–4.6	4.7–6.8	6.9–7.5	> 7.5
60	0–4.4	4.5–4.8	4.9–7.1	7.2–7.8	> 7.8
61	0–4.6	4.7–5.0	5.1–7.4	7.5–8.2	> 8.2
62	0–4.8	4.9–5.2	5.3–7.7	7.8–8.5	> 8.5
63	0–5.0	5.1–5.4	5.5–8.0	8.1–8.8	> 8.8
64	0–5.2	5.3–5.6	5.7–8.3	8.4–9.1	> 9.1
65	0–5.4	5.5–5.8	5.9–8.6	8.7–9.5	> 9.5
66	0–5.5	5.6–6.0	6.1–8.8	8.9–9.8	> 9.8
67	0–5.7	5.8–6.2	6.3–9.1	9.2–10.0	> 10.0
68	0–5.9	6.0–6.4	6.5–9.4	9.5–10.3	> 10.3
69	0–6.0	6.1–6.6	6.7–9.6	9.7–10.6	> 10.6
70	0–6.2	6.3–6.8	6.9–9.9	10.0–10.9	> 10.9
71	0–6.4	6.5–6.9	7.0–10.1	10.2–11.1	> 11.1
72	0–6.5	6.6–7.1	7.2–10.3	10.4–11.4	> 11.4
73	0–6.7	6.8–7.3	7.4–10.6	10.7–11.7	> 11.7
74	0–6.8	6.9–7.4	7.5–10.8	10.9–11.9	> 11.9
75	0–7.0	7.1–7.6	7.7–11.0	11.1–12.2	> 12.2
76	0–7.1	7.2–7.7	7.8–11.2	11.3–12.4	> 12.4
77	0–7.3	7.4–7.9	8.0–11.5	11.6–12.6	> 12.6
78	0–7.4	7.5–8.1	8.2–11.7	11.8–12.9	> 12.9
79	0–7.6	7.7–8.2	8.3–11.9	12.0–13.1	> 13.1
80	0–7.7	7.8–8.4	8.5–12.1	12.2–13.4	> 13.4
81	0–7.9	8.0–8.6	8.7–12.4	12.5–13.7	> 13.7
82	0–8.0	8.1–8.7	8.8–12.6	12.7–13.9	> 13.9
83	0–8.2	8.3–8.9	9.0–12.9	13.0–14.2	> 14.2
84	0–8.4	8.5–9.1	9.2–13.2	13.3–14.5	> 14.5
85	0–8.6	8.7–9.3	9.4–13.5	13.6–14.9	> 14.9
86	0–8.8	8.9–9.6	9.7–13.8	13.9–15.2	> 15.2
87	0–9.0	9.1–9.8	9.9–14.1	14.2–15.5	> 15.5
88	0–9.2	9.3–10.0	10.1–14.4	14.5–15.9	> 15.9
89	0–9.4	9.5–10.2	10.3–14.7	14.8–16.2	> 16.2

**BOYS 0–23 months, weight-for-length**

Length (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
90	0–10.0	10.1–10.8	10.9–15.0	15.1–16.4	> 16.4
91	0–10.2	10.3–11.0	11.1–15.3	15.4–16.7	> 16.7
92	0–10.4	10.5–11.2	11.3–15.6	15.7–17.0	> 17.0
93	0–10.6	10.7–11.4	11.5–15.8	15.9–17.3	> 17.3
94	0–10.7	10.8–11.6	11.7–16.1	16.2–17.6	> 17.6
95	0–10.9	11.0–11.8	11.9–16.4	16.5–17.9	> 17.9
96	0–11.1	11.2–12.0	12.1–16.7	16.8–18.2	> 18.2
97	0–11.3	11.4–12.2	12.3–17.0	17.1–18.5	> 18.5
98	0–11.5	11.6–12.4	12.5–17.3	17.4–18.9	> 18.9
99	0–11.7	11.8–12.6	12.7–17.6	17.7–19.2	> 19.2
100	0–11.9	12.0–12.8	12.9–18.0	18.1–19.6	> 19.6

**GIRLS 0–23 months, weight-for-length**

Length (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
90	0–9.6	9.7–10.4	10.5–15.0	15.1–16.5	> 16.5
91	0–9.8	9.9–10.6	10.7–15.3	15.4–16.9	> 16.9
92	0–10.0	10.1–10.8	10.9–15.6	15.7–17.2	> 17.2
93	0–10.1	10.2–11.0	11.1–15.9	16.0–17.5	> 17.5
94	0–10.3	10.4–11.2	11.3–16.2	16.3–17.9	> 17.9
95	0–10.5	10.6–11.4	11.5–16.5	16.6–18.2	> 18.2
96	0–10.7	10.8–11.6	11.7–16.8	16.9–18.6	> 18.6
97	0–10.9	11.0–11.9	12.0–17.1	17.2–18.9	> 18.9
98	0–11.1	11.2–12.1	12.2–17.5	17.6–19.3	> 19.3
99	0–11.3	11.4–12.3	12.4–17.8	17.9–19.6	> 19.6
100	0–11.5	11.6–12.5	12.6–18.1	18.2–20.0	> 20.0

**BOYS, 24–59 months, weight-for-height**

Height (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
65	0–5.8	5.9–6.2	6.3–8.8	8.9–9.6	> 9.6
66	0–6.0	6.1–6.4	6.5–9.1	9.2–9.9	> 9.9
67	0–6.1	6.2–6.6	6.7–9.4	9.5–10.2	> 10.2
68	0–6.3	6.4–6.8	6.9–9.6	9.7–10.5	> 10.5
69	0–6.5	6.6–7.0	7.1–9.9	10.0–10.8	> 10.8
70	0–6.7	6.8–7.2	7.3–10.2	10.3–11.1	> 11.1
71	0–6.8	6.9–7.4	7.5–10.4	10.5–11.4	> 11.4
72	0–7.0	7.1–7.6	7.7–10.7	10.8–11.7	> 11.7
73	0–7.2	7.3–7.8	7.9–11.0	11.1–12.0	> 12.0
74	0–7.3	7.4–7.9	8.0–11.2	11.3–12.2	> 12.2
75	0–7.5	7.6–8.1	8.2–11.4	11.5–12.5	> 12.5
76	0–7.6	7.7–8.3	8.4–11.7	11.8–12.8	> 12.8
77	0–7.8	7.9–8.4	8.5–11.9	12.0–13.0	> 13.0
78	0–7.9	8.0–8.6	8.7–12.1	12.2–13.3	> 13.3
79	0–8.1	8.2–8.7	8.8–12.3	12.4–13.5	> 13.5
80	0–8.2	8.3–8.9	9.0–12.6	12.7–13.7	> 13.7
81	0–8.4	8.5–9.1	9.2–12.8	12.9–14.0	> 14.0
82	0–8.6	8.7–9.2	9.3–13.0	13.1–14.2	> 14.2
83	0–8.7	8.8–9.4	9.5–13.3	13.4–14.5	> 14.5
84	0–8.9	9.0–9.6	9.7–13.5	13.6–14.8	> 14.8
85	0–9.1	9.2–9.9	10.0–13.8	13.9–15.1	> 15.1
86	0–9.3	9.4–10.1	10.2–14.1	14.2–15.4	> 15.4
87	0–9.5	9.6–10.3	10.4–14.4	14.5–15.7	> 15.7
88	0–9.7	9.8–10.5	10.6–14.7	14.8–16.0	> 16.0
89	0–9.9	10.0–10.7	10.8–14.9	15.0–16.3	> 16.3
90	0–10.1	10.2–10.9	11.0–15.2	15.3–16.6	> 16.6
91	0–10.3	10.4–11.1	11.2–15.5	15.6–16.9	> 16.9
92	0–10.5	10.6–11.3	11.4–15.8	15.9–17.2	> 17.2

**GIRLS, 24–59 months, weight-for-height**

Height (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
65	0–5.5	5.6–6.0	6.1–8.7	8.8–9.7	> 9.7
66	0–5.7	5.8–6.2	6.3–9.0	9.1–10.0	> 10.0
67	0–5.8	5.9–6.3	6.4–9.3	9.4–10.2	> 10.2
68	0–6.0	6.1–6.5	6.6–9.5	9.6–10.5	> 10.5
69	0–6.2	6.3–6.7	6.8–9.8	9.9–10.8	> 10.8
70	0–6.3	6.4–6.9	7.0–10.0	10.1–11.1	> 11.1
71	0–6.5	6.6–7.0	7.1–10.3	10.4–11.3	> 11.3
72	0–6.6	6.7–7.2	7.3–10.5	10.6–11.6	> 11.6
73	0–6.8	6.9–7.4	7.5–10.7	10.8–11.8	> 11.8
74	0–6.9	7.0–7.5	7.6–11.0	11.1–12.1	> 12.1
75	0–7.1	7.2–7.7	7.8–11.2	11.3–12.3	> 12.3
76	0–7.2	7.3–7.9	8.0–11.4	11.5–12.6	> 12.6
77	0–7.4	7.5–8.0	8.1–11.6	11.7–12.8	> 12.8
78	0–7.5	7.6–8.2	8.3–11.8	11.9–13.1	> 13.1
79	0–7.7	7.8–8.3	8.4–12.1	12.2–13.3	> 13.3
80	0–7.8	7.9–8.5	8.6–12.3	12.4–13.6	> 13.6
81	0–8.0	8.1–8.7	8.8–12.6	12.7–13.9	> 13.9
82	0–8.2	8.3–8.9	9.0–12.8	12.9–14.1	> 14.1
83	0–8.4	8.5–9.1	9.2–13.1	13.2–14.5	> 14.5
84	0–8.5	8.6–9.3	9.4–13.4	13.5–14.8	> 14.8
85	0–8.7	8.8–9.5	9.6–13.7	13.8–15.1	> 15.1
86	0–8.9	9.0–9.7	9.8–14.0	14.1–15.4	> 15.4
87	0–9.1	9.2–9.9	10.0–14.3	14.4–15.8	> 15.8
88	0–9.3	9.4–10.1	10.2–14.6	14.7–16.1	> 16.1
89	0–9.5	9.6–10.3	10.4–14.9	15.0–16.4	> 16.4
90	0–9.7	9.8–10.5	10.6–15.2	15.3–16.8	> 16.8
91	0–9.9	10.0–10.8	10.9–15.5	15.6–17.1	> 17.1
92	0–10.1	10.2–11.0	11.1–15.8	15.9–17.4	> 17.4

**BOYS, 24–59 months, weight-for-height**

Height (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
93	0–10.7	10.8–11.5	11.6–16.0	16.1–17.5	> 17.5
94	0–10.9	11.0–11.7	11.8–16.3	16.4–17.8	> 17.8
95	0–11.0	11.1–11.9	12.0–16.6	16.7–18.1	> 18.1
96	0–11.2	11.3–12.1	12.2–16.9	17.0–18.4	> 18.4
97	0–11.4	11.5–12.3	12.4–17.2	17.3–18.8	> 18.8
98	0–11.6	11.7–12.5	12.6–17.5	17.6–19.1	> 19.1
99	0–11.8	11.9–12.8	12.9–17.9	18.0–19.5	> 19.5
100	0–12.0	12.1–13.0	13.1–18.2	18.3–19.9	> 19.9
101	0–12.2	12.3–13.2	13.3–18.5	18.6–20.3	> 20.3
102	0–12.4	12.5–13.5	13.6–18.9	19.0–20.7	> 20.7
103	0–12.7	12.8–13.7	13.8–19.3	19.4–21.1	> 21.1
104	0–12.9	13.0–13.9	14.0–19.7	19.8–21.6	> 21.6
105	0–13.1	13.2–14.2	14.3–20.1	20.2–22.0	> 22.0
106	0–13.3	13.4–14.4	14.5–20.5	20.6–22.5	> 22.5
107	0–13.6	13.7–14.7	14.8–20.9	21.0–22.9	> 22.9
108	0–13.8	13.9–15.0	15.1–21.3	21.4–23.4	> 23.4
109	0–14.0	14.1–15.2	15.3–21.8	21.9–23.9	> 23.9
110	0–14.3	14.4–15.5	15.6–22.2	22.3–24.4	> 24.4
111	0–14.5	14.6–15.8	15.9–22.7	22.8–25.0	> 25.0
112	0–14.8	14.9–16.1	16.2–23.1	23.2–25.5	> 25.5
113	0–15.1	15.2–16.4	16.5–23.6	23.7–26.0	> 26.0
114	0–15.3	15.4–16.7	16.8–24.1	24.2–26.6	> 26.6
115	0–15.6	15.7–17.0	17.1–24.6	24.7–27.2	> 27.2
116	0–15.9	16.0–17.3	17.4–25.1	25.2–27.8	> 27.8
117	0–16.1	16.2–17.6	17.7–25.6	25.7–28.3	> 28.3
118	0–16.4	16.5–17.9	18.0–26.1	26.2–28.9	> 28.9
119	0–16.7	16.8–18.2	18.3–26.6	26.7–29.5	> 29.5
120	0–17.0	17.1–18.5	18.6–27.2	27.3–30.1	> 30.1

**GIRLS, 24–59 months, weight-for-height**

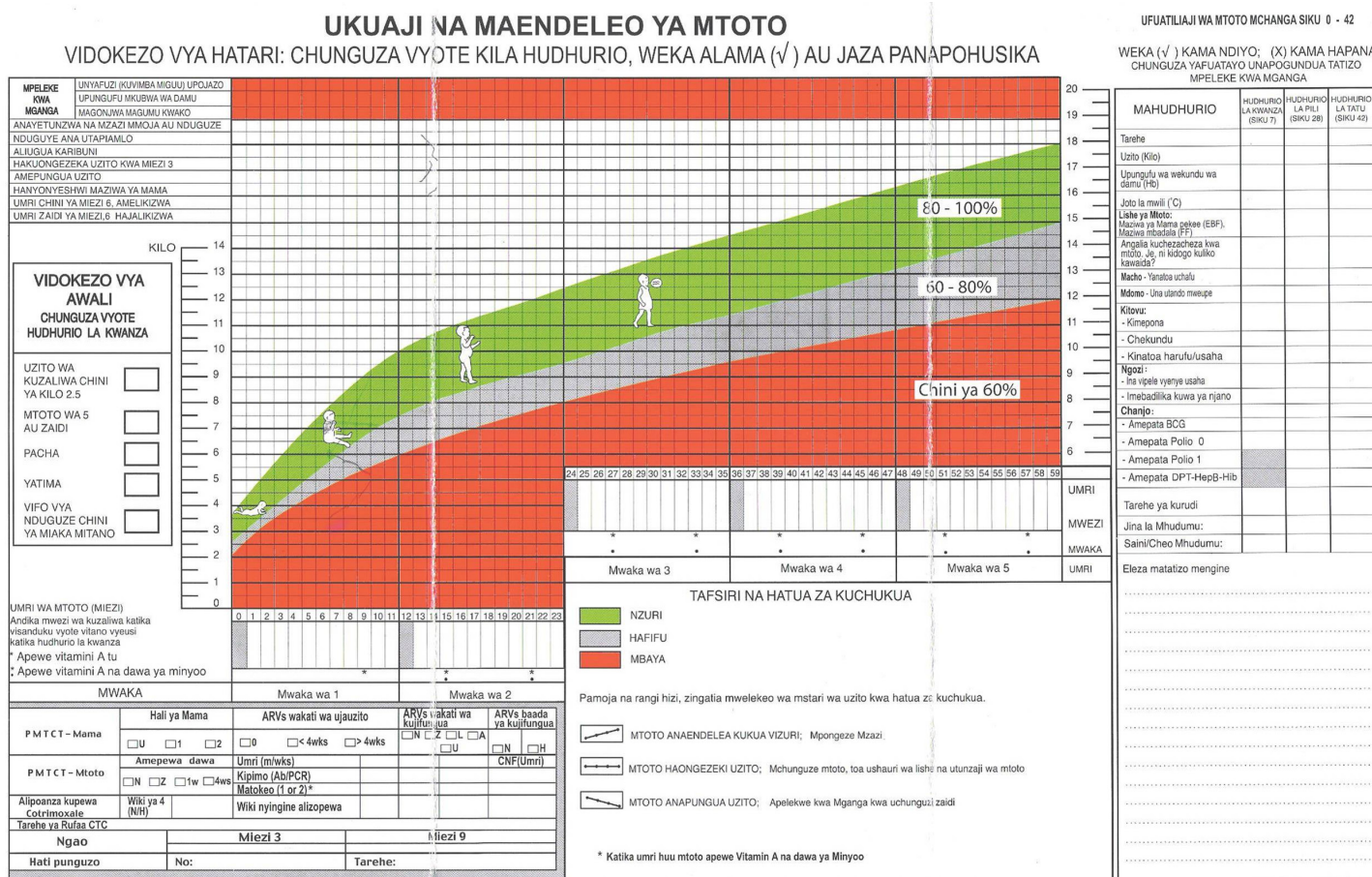
Height (cm)	SAM < -3	MAM ≥ -3 to < -2	Normal ≥ -2 to ≤ +2	Over-weight > +2 to ≤ +3	Obesity > +3
93	0–10.3	10.4–11.2	11.3–16.1	16.2–17.8	> 17.8
94	0–10.5	10.6–11.4	11.5–16.4	16.5–18.1	> 18.1
95	0–10.7	10.8–11.6	11.7–16.7	16.8–18.5	> 18.5
96	0–10.8	10.9–11.8	11.9–17.0	17.1–18.8	> 18.8
97	0–11.0	11.1–12.0	12.1–17.4	17.5–19.2	> 19.2
98	0–11.2	11.3–12.2	12.3–17.7	17.8–19.5	> 19.5
99	0–11.4	11.5–12.4	12.5–18.0	18.1–19.9	> 19.9
100	0–11.6	11.7–12.7	12.8–18.4	18.5–20.3	> 20.3
101	0–11.9	12.0–12.9	13.0–18.7	18.8–20.7	> 20.7
102	0–12.1	12.2–13.2	13.3–19.1	19.2–21.1	> 21.1
103	0–12.3	12.4–13.4	13.5–19.5	19.6–21.6	> 21.6
104	0–12.5	12.6–13.7	13.8–19.9	20.0–22.0	> 22.0
105	0–12.8	12.9–13.9	14.0–20.3	20.4–22.5	> 22.5
106	0–13.0	13.1–14.2	14.3–20.8	20.9–23.0	> 23.0
107	0–13.3	13.4–14.5	14.6–21.2	21.3–23.5	> 23.5
108	0–13.6	13.7–14.8	14.9–21.7	21.8–24.0	> 24.0
109	0–13.8	13.9–15.1	15.2–22.1	22.2–24.5	> 24.5
110	0–14.1	14.2–15.4	15.5–22.6	22.7–25.1	> 25.1
111	0–14.4	14.5–15.7	15.8–23.1	23.2–25.7	> 25.7
112	0–14.7	14.8–16.1	16.2–23.6	23.7–26.2	> 26.2
113	0–15.0	15.1–16.4	16.5–24.2	24.3–26.8	> 26.8
114	0–15.3	15.4–16.7	16.8–24.7	24.8–27.4	> 27.4
115	0–15.6	15.7–17.1	17.2–25.2	25.3–28.1	> 28.1
116	0–15.9	16.0–17.4	17.5–25.8	25.9–28.7	> 28.7
117	0–16.2	16.3–17.7	17.8–26.3	26.4–29.3	> 29.3
118	0–16.5	16.6–18.1	18.2–26.9	27.0–29.9	> 29.9
119	0–16.8	16.9–18.4	18.5–27.4	27.5–30.6	> 30.6
120	0–17.2	17.3–18.8	18.9–28.0	28.1–31.2	> 31.2



# 8 HOW TO FIND WEIGHT-FOR-AGE FOR CHILDREN FROM BIRTH TO 59 MONTHS OF AGE USING THE TANZANIA CHILD GROWTH CARD (RCH1)

1. Find the child's weight in kg on the vertical line (y axis).
2. Run your finger straight across to find the child's age in months on the horizontal line (x axis).
3. Mark the point where the two lines meet and look at the colour of the curve.

- Growing well
- Moderately underweight
- Severely underweight





Toleo la 2008

Mtoto apimwe uzito kila mwezi

Lazima mtoto apate cheti cha kuzaliwa kutoka kwa Msajili wa Vizazi na Vifo

Fuatilia, Chunguza, Shauri kuhusu Lishe ya Mtoto katika kila hudhuria

## HOW TO FIND HEIGHT-FOR-AGE FOR CHILDREN FROM BIRTH TO 59 MONTHS OF AGE

Height-for-height z-score (HAZ) compares a child's length/height to the length/height of a child of the same age and sex in the 2006 WHO Child Growth Standards. HAZ is used to identify stunting, which indicates chronic malnutrition. There are separate WHO HAZ tables for boys and girls and for length for age (from 0 to 23 months) and height for age (from 24 to 59 months). The middle column in each table lists the median height for a given age. To either side of the middle column are z-scores based on age in years or months. With this information, you can determine in which z-score range a child's HAZ falls (e.g.,  $< -2$  and  $> -3$ ).

To use the HAZ tables to classify nutritional status:

1. Find the correct table for the child's age (0–23 months or 24–59 months) and sex.
2. In the two left-hand columns, find the child's age in years (first column) or months (second column).
3. Run your finger straight across to find the child's length or height in cm.
  - a. If the child is *shorter* than the median, find the z-score column that lists the *lowest* height that is *greater* than the child's height. Confirm that the child is *taller* than the height in the column to the *left*. For example, if a child is shorter than the height under  $-1$  z-score but taller than the height under  $-2$  z-score, the child is  $< -1$  and  $> -2$  z-score and mildly stunted.
  - b. If the child is *taller* than the median, find the z-score column that lists the *greatest* height that is *lower* than the child's height. Confirm that the child is *shorter* than the height in the column to the *right*. For example, if the child is taller than the height under  $+2$  z-score but shorter than the height under  $+3$  z-score, then the child is  $> +2$  and  $< +3$  z-score and overweight.

**BOYS birth to 2 years, height-for-age**

Year: month	Month	-3	-2	-1	Median	+1	+2	+3
0:0	0	44.2	46.1	48.0	49.9	51.8	53.7	55.6
0:1	1	48.9	50.8	52.8	54.7	56.7	58.6	60.6
0:2	2	52.4	54.4	56.4	58.4	60.4	62.4	64.4
0:3	3	55.3	57.3	59.4	61.4	63.5	65.5	67.6
0:4	4	57.6	59.7	61.8	63.9	66.0	68.0	70.1
0:5	5	59.6	61.7	63.8	65.9	68.0	70.1	72.2
0:6	6	61.2	63.3	65.5	67.6	69.8	71.9	74.0
0:7	7	62.7	64.8	67.0	69.2	71.3	73.5	75.7
0:8	8	64.0	66.2	68.4	70.6	72.8	75.0	77.3
0:9	9	65.2	67.5	69.7	72.0	74.2	76.5	78.7
0:10	10	66.4	68.7	71.0	73.3	75.6	77.9	80.1
0:11	11	67.6	69.9	72.2	74.5	76.9	79.2	81.5
1:0	12	68.6	71.0	73.4	75.7	78.1	80.5	82.9
1:1	13	69.6	72.1	74.5	76.9	79.3	81.8	84.2
1:2	14	70.6	73.1	75.6	78.0	80.5	83.0	85.5
1:3	15	71.6	74.1	76.6	79.1	81.7	84.2	86.7
1:4	16	72.5	75.0	77.6	80.2	82.8	85.4	88.0
1:5	17	73.3	76.0	78.6	81.2	83.9	86.5	89.2
1:6	18	74.2	76.9	79.6	82.3	85.0	87.7	90.4
1:7	19	75.0	77.7	80.5	83.2	86.0	88.8	91.5
1:8	20	75.8	78.6	81.4	84.2	87.0	89.8	92.6
1:9	21	76.5	79.4	82.3	85.1	88.9	90.0	93.8
1:10	22	77.2	80.2	83.1	86.0	89.0	91.9	94.9
1:11	23	78.0	81.0	83.9	86.9	89.9	92.9	95.9
2:0	24	78.0	81.0	84.1	87.1	90.2	93.2	96.3
2:1	25	78.6	81.7	84.9	88.0	91.1	94.2	97.3
2:2	26	79.3	82.5	85.6	88.8	92.0	95.2	98.3
2:3	27	79.9	83.1	86.4	89.6	92.9	96.1	99.3
2:4	28	80.5	83.8	87.1	90.4	93.7	97.0	100.3
2:5	29	81.1	84.5	87.8	91.2	94.5	97.9	101.2
2:6	30	81.7	85.1	88.5	91.9	95.3	98.7	102.1
2:7	31	82.3	85.7	89.2	92.7	96.1	99.6	103.0
2:8	32	82.8	86.4	89.9	93.4	96.9	100.4	103.9
2:9	33	83.4	86.9	90.5	94.1	97.6	101.2	104.8
2:10	34	83.9	87.5	91.1	94.8	98.4	102.0	105.6
2:11	35	84.4	88.1	91.8	95.4	99.1	102.7	106.4
3:0	36	85.0	88.7	92.4	96.1	99.8	103.5	107.2
3:1	37	85.5	89.2	93.0	96.7	100.5	104.2	108.0
3:2	38	86.0	89.8	93.6	97.4	101.2	105.0	108.8
3:3	39	86.5	90.3	94.2	98.0	101.8	105.7	109.5
3:4	40	87.0	90.9	94.7	98.6	102.5	106.4	110.3
3:5	41	87.5	91.4	95.3	99.2	103.2	107.1	111.0
3:6	42	88.0	91.9	95.9	99.9	103.8	107.8	111.7
3:7	43	88.4	92.4	96.4	100.4	104.5	108.5	112.5
3:8	44	88.9	93.0	97.0	101.0	105.1	109.1	113.2
3:9	45	89.4	93.5	97.5	101.6	105.7	109.8	113.9
3:10	46	89.8	94.0	98.1	102.2	106.3	110.4	114.6
3:11	47	90.3	94.4	98.6	102.8	106.9	111.1	115.2

**GIRLS birth to 2 years, height-for-age**

Year: month	Month	-3	-2	-1	Median	+1	+2	+3
0:0	0	43.6	45.4	47.3	49.1	51.0	52.9	54.7
0:1	1	47.8	49.8	51.7	53.7	55.6	57.6	59.5
0:2	2	51.0	53.0	55.0	57.1	59.1	61.1	63.2
0:3	3	53.5	55.6	57.7	59.8	61.9	64.0	66.1
0:4	4	55.6	57.8	59.9	62.1	64.3	66.4	68.6
0:5	5	57.4	59.6	61.8	64.0	66.2	68.5	70.7
0:6	6	58.9	61.2	63.5	65.7	68.0	70.3	72.5
0:7	7	60.3	62.7	65.0	67.3	69.6	71.9	74.2
0:8	8	61.7	64.0	66.4	68.7	71.1	73.5	75.8
0:9	9	62.9	65.3	67.7	70.1	72.6	75.0	77.4
0:10	10	64.1	66.5	69.0	71.5	73.9	76.4	78.9
0:11	11	65.2	67.7	70.3	72.8	75.3	77.8	80.3
1:0	12	66.3	68.9	71.4	74.0	76.6	79.2	81.7
1:1	13	67.3	70.0	72.6	75.2	77.8	80.5	83.1
1:2	14	68.3	71.0	73.7	76.4	79.1	81.7	84.4
1:3	15	69.3	72.0	74.8	77.5	80.2	83.0	85.7
1:4	16	70.2	73.0	75.8	78.6	81.4	84.2	87.0
1:5	17	71.1	74.0	76.8	79.7	82.5	85.4	88.2
1:6	18	72.0	74.9	77.8	80.7	83.6	86.5	89.4
1:7	19	72.8	75.8	78.8	81.7	84.7	87.6	90.6
1:8	20	73.7	76.7	79.7	82.7	85.7	88.7	91.7
1:9	21	74.5	77.5	80.6	83.7	86.7	89.8	92.9
1:10	22	75.2	78.4	81.5	84.6	87.7	90.8	94.0
1:11	23	76.0	79.2	82.3	85.5	88.7	91.9	95.0
2:0	24	76.0	79.3	82.5	85.7	88.9	92.2	95.4
2:1	25	76.8	80.0	83.3	86.6	89.9	93.1	96.4
2:2	26	77.5	80.8	84.1	87.4	90.8	94.1	97.4
2:3	27	78.1	81.5	84.9	88.3	91.7	95.0	98.4
2:4	28	78.8	82.2	85.7	89.1	92.5	96.0	99.4
2:5	29	79.5	82.9	86.4	89.9	93.4	96.9	100.3
2:6	30	80.1	83.6	87.1	90.7	94.2	97.7	101.3
2:7	31	80.7	84.3	87.9	91.4	95.0	98.6	102.2
2:8	32	81.3	84.9	88.6	92.2	95.8	99.4	103.1
2:9	33	81.9	85.6	89.3	92.9	96.6	100.3	103.9
2:10	34	82.5	86.2	89.9	93.6	97.4	101.1	104.8
2:11	35	83.1	86.8	90.6	94.4	98.1	101.9	105.6
3:0	36	83.6	87.4	91.2	95.1	98.9	102.7	106.5
3:1	37	84.2	88.0	91.9	95.7	99.6	103.4	107.3
3:2	38	84.7	88.6	92.5	96.4	100.3	104.2	108.1
3:3	39	85.3	89.2	93.1	97.1	101.0	105.0	108.9
3:4	40	85.8	89.8	93.8	97.7	101.7	105.7	109.7
3:5	41	86.3	90.4	94.4	98.4	102.4	106.4	110.5
3:6	42	86.8	90.9	95.0	99.0	103.2	107.2	111.2
3:7	43	87.4	91.5	95.6	99.7	103.8	107.9	112.0
3:8	44	87.9	92.0	96.2	100.3	104.5	108.6	112.7
3:9	45	88.4	92.5	96.7	100.9	105.2	109.3	113.5
3:10	46	88.9	93.1	97.3	101.5	105.8	110.0	114.2
3:11	47	89.3	93.6	97.9	102.1	106.4	110.7	114.9

**BOYS 2 to 5 years, height-for-age**

Year: month	Month	-3	-2	-1	Median > +3	+1	+2	+3
4:0	48	90.7	94.9	99.1	103.3	107.5	111.7	115.9
4:1	49	91.2	95.4	99.7	103.9	108.1	112.4	116.6
4:2	50	91.6	95.9	100.2	104.4	108.7	113.0	117.3
4:3	51	92.1	96.4	100.7	105.0	109.3	113.6	117.9
4:4	52	92.5	96.9	101.2	105.6	109.9	114.2	118.6
4:5	53	93.0	97.4	101.7	106.1	110.5	114.9	119.2
4:6	54	93.4	97.8	102.3	106.7	111.1	115.5	119.9
4:7	55	93.9	98.3	102.8	107.2	111.7	116.1	120.6
4:8	56	94.3	98.8	103.3	107.8	112.3	116.7	121.2
4:9	57	94.7	99.3	103.8	108.3	112.8	117.4	121.9
4:10	58	95.2	99.7	104.3	108.9	113.4	118.0	122.6
4:11	59	95.6	100.2	104.8	109.4	114.0	118.6	123.2
5:0	60	96.1	100.7	105.3	110.0	114.6	119.2	123.9

**GIRLS 2 to 5 years, height-for-age**

Year: month	Month	-3	-2	-1	Median > +3	+1	+2	+3
4:0	48	89.89	94.1	98.4	102.7	107.0	111.3	115.7
4:1	49	90.3	94.6	99.0	103.3	107.7	112.0	116.4
4:2	50	90.7	95.1	99.5	103.9	108.3	112.7	117.1
4:3	51	91.2	95.6	100.1	104.5	108.9	113.3	117.7
4:4	52	91.7	96.1	100.6	105.0	109.5	114.0	118.4
4:5	53	92.1	96.6	101.1	105.6	110.1	114.6	119.1
4:6	54	92.6	97.1	101.6	106.2	110.7	115.2	119.8
4:7	55	93.0	97.6	102.2	106.7	111.3	115.9	120.4
4:8	56	93.4	98.1	102.7	107.3	111.9	116.5	121.1
4:9	57	93.9	98.5	103.2	107.8	112.5	117.1	121.8
4:10	58	94.3	99.0	103.7	108.4	113.0	117.8	122.4
4:11	59	94.7	99.5	104.2	108.9	113.6	118.3	123.1
5:0	60	95.2	99.9	104.7	109.4	114.2	118.9	123.7

## 10 HOW TO FIND BODY MASS INDEX (BMI) FOR ADULTS

$$\text{Body mass index (BMI)} = \frac{\text{weight (kg)}}{\text{height (m)}^2}$$

BMI is measured for adolescents 15–17 years of age and adults (non-pregnant/ $\leq$  6 months post-partum).

1. On the chart on the next page, find the client's height in the left-hand column, or y axis (1 metre = 100 cm).
2. Find the client's weight in the bottom row, or x axis.
3. Find the point where the two lines meet. This is the BMI for that height and weight.
4. If the height or weight is an odd number, then find the point where all the lines meet (two or four cells), and use an average value. For example, if height is 191 cm and weight is 60 kg, find the point where 190 and 192 (on the y axis) and 60 (on the x axis) meet. The cells contain 16 and 17, so use a BMI of 16.5 (the average of 16 and 17).



Red shows severe acute malnutrition (SAM) (BMI < 16.0).



Yellow shows moderate acute malnutrition (MAM) (BMI  $\geq$  16.0 to < 18.5).



Green shows normal nutritional status (BMI  $\geq$  18.5 to < 25.0).



Light purple shows overweight (BMI  $\geq$  25.0 to < 30.0).



Dark purple shows obesity (BMI  $\geq$  30.0).

# BMI REFERENCE CHART (CONTINUED)

Height (cm)																																											
200	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29
198	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30
196	8	9	9	10	10	11	11	12	12	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30
194	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31
192	9	9	10	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	20	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	30	31	31
190	9	10	10	11	11	12	12	13	13	14	14	15	16	16	17	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	30	30	30	31	32	32
188	9	10	10	11	11	12	12	13	14	14	15	15	16	16	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32	33
186	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	18	19	20	20	21	21	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32	33	34
184	10	10	11	11	12	12	13	14	14	15	15	16	16	17	17	17	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30	30	31	31	32	32	33	34
182	10	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30	30	31	31	32	33	33	34	34	35
180	10	10	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20	20	21	22	22	23	23	24	25	25	26	27	27	28	28	29	30	30	31	31	32	33	33	34	35	35	36
178	10	10	11	12	13	13	14	15	15	16	16	17	18	18	19	20	20	21	21	22	22	23	24	25	25	26	27	27	28	28	29	30	30	31	32	32	33	33	34	35	35	36	37
176	10	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	30	30	31	32	32	33	34	34	35	36	36	37	37
174	10	11	12	13	13	14	15	15	16	17	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29	30	30	31	32	32	33	34	34	35	36	36	37	38	38
172	11	11	12	13	14	14	15	16	16	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29	30	30	30	31	32	32	33	34	34	35	36	37	38	39	39
170	11	12	12	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	24	24	25	26	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36	37	37	38	39	39	40
168	11	12	13	13	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	26	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36	37	38	38	39	40	40	41
166	12	12	13	14	15	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25	26	27	28	28	29	30	30	31	32	33	33	34	35	36	36	37	38	38	39	40	41	41	42
164	12	13	13	14	15	16	16	17	18	19	19	20	21	22	22	23	24	25	25	26	27	28	28	29	30	30	31	32	33	33	34	35	36	36	37	38	38	39	40	41	42	42	43
162	12	13	14	14	15	16	17	18	18	19	20	21	21	22	23	24	24	25	26	27	27	28	29	30	30	31	32	33	34	34	35	36	37	37	38	39	39	40	41	42	43	43	44
160	13	13	14	15	16	16	17	18	19	20	20	21	22	23	23	24	25	26	27	27	28	29	30	30	31	32	33	34	34	35	36	37	38	38	39	40	41	41	42	43	44	45	45
158	13	14	14	15	16	17	18	18	19	20	21	22	22	23	24	25	26	26	27	28	29	30	30	31	32	33	34	34	35	36	37	38	38	39	40	41	42	42	43	44	45	46	46
156	13	14	15	16	16	17	18	19	20	21	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	35	35	36	37	38	39	39	40	41	42	43	44	44	45	46	47	48
154	14	14	15	16	17	18	19	19	20	21	22	23	24	24	25	26	27	28	29	30	30	31	32	33	34	35	35	36	37	38	39	40	40	41	42	43	44	45	46	46	47	48	49
152	14	15	16	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	42	43	44	45	46	47	48	48	49	50
150	14	15	16	17	18	18	19	20	21	22	23	24	25	26	27	27	28	29	30	31	31	32	33	34	36	36	37	38	39	40	41	41	42	43	44	45	45	46	47	48	49	50	51
148	15	16	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38	39	40	41	42	42	43	44	44	45	46	47	48	49	50	51	52
146	15	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	43	43	44	45	46	46	47	48	49	50	51	52	53
144	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	36	37	38	39	40	41	42	43	43	44	45	46	46	47	48	49	50	51	52	53	54
Weight (kg)	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116

## 11 HOW TO FIND BMI-FOR-AGE FOR CHILDREN AND ADOLESCENTS

BMI-for-age is measured in children and adolescents 5–17 years of age. To find BMI-for-age:

**1. If using the BMI look-up tables:**

- a. Find the age in the left-hand column (you may have to round up or down).
- b. Then trace your finger across the page until you see the range that includes the BMI of the child or adolescent.
- c. Find the child's or adolescent's nutritional status at the top of the column.

**2. If using a BMI wheel:**

- a. On the BMI side of the wheel, turn the wheel to align the child's or adolescent's weight and height.
- b. Read the BMI over the arrow and record it.
- c. Turn the wheel over to the BMI-for-age side.
- d. Point the arrow to the number closest to the child's or adolescent's age. For example, if a child is 7 years and 5 months of age, point the arrow to 7. If the child is 7 years and 6 months of age, point the arrow to 8.
- e. Use the BMI you found on the other side of the wheel to find the child's or adolescent's nutritional status in the table for girls at the top of this side of the wheel or the table for boys at the bottom of this side of the wheel.



# BMI LOOK-UP TABLE FOR CHILDREN 5–17 YEARS

Height (cm)	85–114 cm tall																												
	114	7.7	8.5	9.2	10.0	10.8	11.5	12.3	13.1	13.9	14.6	15.4	16.2	16.9	17.7	18.5	19.2	20.0	20.8	21.5	22.3	23.1	23.9	24.6	25.4	26.2	26.9	27.7	28.5
113	7.8	8.6	9.4	10.2	11.0	11.7	12.5	13.3	14.1	14.9	15.7	16.4	17.2	18.0	18.8	19.6	20.4	21.1	21.9	22.7	23.5	24.3	25.1	25.8	26.6	27.4	28.2	29.0	
112	8.0	8.8	9.6	10.4	11.2	12.0	12.8	13.6	14.3	15.1	15.9	16.7	17.5	18.3	19.1	19.9	20.7	21.5	22.3	23.1	23.9	24.7	25.5	26.3	27.1	27.9	28.7	29.5	
111	8.1	8.9	9.7	10.6	8.0	12.2	13.0	13.8	14.6	15.4	16.2	17.0	17.9	18.7	19.5	20.3	21.1	21.9	22.7	23.5	24.3	25.2	26.0	26.8	17.6	28.4	29.2	30.0	
110	8.3	9.1	9.9	10.7	11.6	12.4	13.2	14.0	14.9	15.7	16.5	17.4	18.2	19.0	19.8	20.7	21.5	22.3	23.1	24.0	24.8	25.6	26.4	27.3	17.9	28.9	29.8	30.6	
109	8.4	9.3	10.1	10.9	11.8	12.6	13.5	14.3	15.2	16.0	16.8	17.7	18.5	19.4	20.2	21.0	21.9	22.7	23.6	24.4	25.3	26.1	26.9	27.8	28.6	29.5	30.3	31.1	
108	8.6	9.4	10.3	11.1	12.0	12.9	13.7	14.6	15.4	16.3	17.1	18.0	18.9	19.7	20.6	21.4	22.3	23.1	24.0	24.9	25.7	26.6	27.4	28.3	29.1	30.0	30.9	31.7	
107	8.7	9.6	10.5	11.4	12.2	13.1	14.0	14.8	15.7	16.6	17.5	18.3	19.2	20.1	21.0	21.8	22.7	23.6	24.5	25.3	26.2	27.1	28.0	28.8	29.7	30.6	31.4	32.3	
106	8.9	9.8	10.7	11.6	12.5	13.3	14.2	15.1	16.0	16.9	17.8	18.7	19.6	20.5	21.4	22.2	23.1	24.0	24.9	25.8	26.7	27.6	28.5	29.4	30.3	31.1	32.0	32.9	
105	9.1	10.0	10.9	11.8	12.7	13.6	14.5	15.4	16.3	17.2	18.1	19.0	20.0	20.9	21.8	22.7	23.6	24.5	25.4	26.3	27.2	28.1	29.0	29.9	30.8	31.7	32.7	33.6	
104	9.2	10.2	11.1	12.0	12.9	13.9	14.8	15.7	16.6	17.6	18.5	19.4	20.3	21.3	22.2	23.1	24.0	25.0	25.9	26.8	27.7	28.7	29.6	30.5	31.4	32.4	33.3	34.2	
103	9.4	10.4	11.3	12.3	13.2	14.1	15.1	16.0	17.0	17.9	18.9	19.8	20.7	21.7	22.6	23.6	24.5	25.5	26.4	27.3	28.3	29.2	30.2	31.1	32.0	33.0	33.9	34.9	
102	9.6	10.6	11.5	12.5	13.5	14.4	15.4	16.3	17.3	18.3	19.2	20.2	21.1	22.1	23.1	24.0	25.0	26.0	26.9	27.9	28.8	29.8	30.8	31.7	32.7	33.6	34.6	35.6	
101	9.8	10.8	11.8	12.7	13.7	14.7	15.7	17.0	17.6	18.6	19.6	20.6	21.6	22.5	23.5	24.5	25.5	26.5	27.4	28.4	29.4	30.4	31.4	32.3	33.3	34.3	35.3	36.3	
100	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.3	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	
99	10.2	11.2	12.2	13.3	14.3	15.3	16.3	17.7	18.4	19.4	20.4	21.4	22.4	23.5	24.5	25.5	26.5	27.5	28.6	29.6	30.6	31.6	32.6	33.7	34.7	35.7	36.7	37.8	
98	10.4	11.5	12.5	13.5	14.6	15.6	16.7	18.1	18.7	19.8	20.8	21.9	22.9	23.9	25.0	26.0	27.1	28.1	29.2	30.2	31.2	32.3	33.3	34.4	35.4	36.4	37.5	38.5	
97	10.6	11.7	12.8	13.8	14.9	15.9	17.0	18.4	19.1	20.2	21.3	22.3	23.4	24.4	25.5	26.6	27.6	28.7	29.8	30.8	31.9	32.9	34.0	35.1	36.1	37.2	38.3	39.3	
96	10.9	11.9	13.0	14.1	15.2	16.3	17.4	18.8	19.5	20.6	21.7	22.8	23.9	25.0	26.0	27.1	28.20	29.3	30.4	31.5	32.6	33.6	34.7	35.8	36.9	38.0	39.1	40.1	
95	11.1	12.2	13.3	14.4	15.5	16.6	17.7	19.2	19.9	21.1	22.2	23.3	24.4	25.5	26.6	27.7	28.8	29.9	31.0	32.1	33.2	34.3	35.5	36.6	37.7	38.8	39.9	41.0	
94	11.3	12.4	13.6	14.7	15.8	17.0	18.1	19.7	20.4	21.5	22.6	23.8	24.9	26.0	27.2	28.3	29.4	30.6	31.7	32.8	34.0	35.1	36.2	37.3	38.5	39.6	40.7	41.9	
93	11.6	12.7	13.9	15.0	16.2	17.3	18.5	12.6	20.8	22.0	23.1	24.3	25.4	26.6	27.7	28.9	30.1	31.2	32.4	33.5	34.7	35.8	37.0	38.2	39.3	40.5	41.6	42.8	
92	11.8	13.0	14.2	15.4	16.5	17.7	18.9	20.1	21.3	22.4	23.6	24.8	26.0	27.2	28.4	29.5	30.7	31.9	33.1	34.3	35.4	36.6	37.8	39.0	40.2	41.4	42.5	43.7	
91	12.1	13.3	14.5	15.7	16.9	18.1	19.3	20.5	21.7	22.9	24.2	25.4	26.6	27.8	29.0	30.2	31.4	32.6	33.8	35.0	36.2	37.4	38.6	39.9	41.1	42.3	43.5	44.7	
90	12.3	13.6	14.8	16.0	17.3	18.5	19.8	21.0	22.2	23.5	24.7	25.9	27.2	28.4	29.6	30.9	32.1	33.3	34.6	35.8	37.0	38.3	39.5	40.7	42.0	43.2	44.4	45.7	
89	12.6	13.9	15.1	16.4	17.7	18.9	20.2	21.5	22.7	24.0	25.2	26.5	27.8	29.0	30.3	31.6	32.8	34.1	35.3	36.6	37.9	39.1	40.4	41.7	42.9	44.2	45.4	46.7	
88	12.9	14.2	15.5	16.8	18.1	19.4	20.7	22.0	23.2	24.5	25.8	27.1	28.4	29.7	31.0	32.3	33.6	34.9	36.2	37.4	38.7	40.0	41.3	42.6	43.9	45.2	46.5	47.8	
87	13.2	14.5	15.9	17.2	18.5	19.8	21.1	22.5	23.8	25.1	26.4	27.7	29.1	30.4	31.7	33.0	34.4	35.7	37.0	38.3	39.6	41.0	42.3	43.6	44.9	46.2	47.6	48.9	
86	13.5	14.9	16.2	17.6	18.9	20.3	21.6	23.0	24.3	25.7	27.0	28.4	29.7	31.1	32.4	33.8	35.2	36.5	37.9	39.2	40.6	41.9	43.3	44.6	46.0	47.3	48.7	50.0	
85	13.8	15.2	16.6	18.0	19.4	20.8	22.1	23.5	24.9	26.3	27.7	29.1	30.4	31.8	33.2	34.6	36.0	37.4	38.8	40.1	41.5	42.9	44.3	45.7	47.1	48.4	49.8	51.2	
Weight (kg)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	



Height (cm)	115–144 cm tall																																			
	144	5.8	6.3	6.8	7.2	7.7	8.2	8.7	9.2	9.6	10.1	10.6	11.1	11.6	12.1	12.5	13.0	13.5	14.0	14.5	14.9	15.4	15.9	16.4	16.9	17.4	17.8	18.3	18.8	19.3	19.8	20.3	20.7	21.2		
143	5.9	6.4	6.8	7.3	7.8	8.3	8.8	9.3	9.8	10.3	10.8	11.2	11.7	12.2	12.7	13.2	13.7	14.2	14.7	15.2	15.6	16.1	16.6	17.1	17.6	18.1	18.6	19.1	19.6	20.0	20.5	21.0	21.5			
142	6.0	6.4	6.9	7.4	7.9	8.4	8.9	9.4	9.9	10.4	10.9	11.4	11.9	12.4	12.9	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.4	17.9	18.3	18.8	19.3	19.8	20.3	20.8	21.3	21.8			
141	6.0	6.5	7.0	7.5	8.0	8.6	9.1	9.6	10.1	10.6	11.1	11.6	12.1	12.6	13.1	13.6	14.1	14.6	15.1	15.6	16.1	16.6	17.1	17.6	18.1	18.6	19.1	19.6	20.1	20.6	21.1	21.6	22.1			
140	6.1	6.6	7.1	7.7	8.2	8.7	9.2	9.7	10.2	10.7	11.2	11.7	12.2	12.8	13.3	13.8	14.3	14.8	15.3	15.8	16.3	16.8	17.3	17.9	18.4	18.9	19.4	19.9	20.4	20.9	21.4	21.9	22.4			
139	6.2	6.7	7.2	7.8	8.3	8.8	9.3	9.8	10.4	10.9	11.4	11.9	12.4	12.9	13.5	14.0	14.5	15.0	15.5	16.0	16.6	17.1	17.6	18.1	18.6	19.2	19.7	20.2	20.7	21.2	21.7	22.3	22.8			
138	6.3	6.8	7.4	7.9	8.4	8.9	9.5	10.0	10.5	11.0	11.6	12.1	12.6	13.1	13.7	14.2	14.7	15.2	15.8	16.3	16.8	17.3	17.9	18.4	18.9	19.4	20.0	20.5	21.0	21.5	22.1	22.6	23.1			
137	6.4	6.9	7.5	8.0	8.5	9.1	9.6	10.1	10.7	11.2	11.7	12.3	12.8	13.3	13.9	14.4	14.9	15.5	16.0	16.5	17.0	17.6	18.1	18.6	19.2	19.7	20.2	20.8	21.3	21.8	22.4	22.9	23.4			
136	6.5	7.0	7.6	8.1	8.7	9.2	9.7	10.3	10.8	11.4	11.9	12.4	13.0	13.5	14.1	14.6	15.1	15.7	16.2	16.8	17.3	17.8	18.4	18.9	19.5	20.0	20.5	21.1	21.6	22.2	22.7	23.2	23.8			
135	6.6	7.1	7.7	8.2	8.8	9.3	9.9	10.4	11.0	11.5	12.1	12.6	13.2	13.7	14.3	14.8	15.4	15.9	16.5	17.0	17.6	18.1	18.7	19.2	19.8	20.3	20.9	21.4	21.9	22.5	23.0	23.6	24.1			
134	6.7	7.2	7.8	8.4	8.9	9.5	10.0	10.6	11.1	11.7	12.3	12.8	13.4	13.9	14.5	15.0	15.6	16.2	16.7	17.3	17.8	18.4	18.9	19.5	20.0	20.6	21.2	21.7	22.3	22.8	23.4	23.9	24.5			
133	6.8	7.3	7.9	8.5	9.0	9.6	10.2	10.7	11.3	11.9	12.4	13.0	13.6	14.1	14.7	15.3	15.8	16.4	17.0	17.5	18.1	18.7	19.2	19.8	20.4	20.9	21.5	22.0	22.6	23.2	23.7	24.3	24.9			
132	6.9	7.5	8.0	8.6	9.2	9.8	10.3	10.9	11.5	12.1	12.6	13.2	13.8	14.3	14.9	15.5	16.1	16.6	17.2	17.8	18.4	18.9	19.5	20.1	20.7	21.2	21.8	22.4	23.0	23.5	24.1	24.7	25.3			
131	7.0	7.6	8.2	8.7	9.3	9.9	10.5	11.1	11.7	12.2	12.8	13.4	14.0	14.6	15.2	15.7	16.3	16.9	17.5	18.1	18.6	19.2	19.8	20.4	21.0	21.6	22.1	22.7	23.3	23.9	24.5	25.1	25.6			
130	7.1	7.7	8.3	8.9	9.5	10.1	10.7	11.2	11.8	12.4	13.0	13.6	14.2	14.8	15.4	16.0	16.6	17.2	17.8	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5	23.1	23.7	24.3	24.9	25.4	26.0			
129	7.2	7.8	8.4	9.0	9.6	10.2	10.8	11.4	12.0	12.6	13.2	13.8	14.4	15.0	15.6	16.2	16.8	17.4	18.0	18.6	19.2	19.8	20.4	21.0	21.6	22.2	22.8	23.4	24.0	24.6	25.2	25.8	26.4			
128	7.3	7.9	8.5	9.2	9.8	10.4	11.0	11.6	12.2	12.8	13.4	14.0	14.6	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.8	21.4	22.0	22.6	23.2	23.8	24.4	25.0	25.6	26.2	26.9			
127	7.4	8.1	8.7	9.3	9.9	10.5	11.2	11.8	12.4	13.0	13.6	14.3	14.9	15.5	16.1	16.7	17.4	18.0	18.6	19.2	19.8	20.5	21.1	21.7	22.3	22.9	23.6	24.2	24.8	25.4	26.0	26.7	27.3			
126	7.6	8.2	8.8	9.4	10.1	10.7	11.3	12.0	12.6	13.2	13.9	14.5	15.1	15.7	16.4	17.0	17.6	18.3	18.9	19.5	20.2	20.8	21.4	22.0	22.7	23.3	23.9	24.6	25.2	25.8	26.5	27.1	27.7			
125	7.7	8.3	9.0	9.6	10.2	10.9	11.5	12.2	12.8	13.4	14.1	14.7	15.4	16.0	16.6	17.3	17.9	18.6	19.2	19.8	20.5	21.1	21.8	22.4	23.0	23.7	24.3	25.0	25.6	26.2	26.9	27.5	28.2			
124	7.8	8.5	9.1	9.8	10.4	11.1	11.7	12.4	13.0	13.7	14.3	15.0	15.6	16.3	16.9	17.6	18.2	18.9	19.5	20.2	20.8	21.5	22.1	22.8	23.4	24.1	24.7	25.4	26.0	26.7	27.3	28.0	28.6			
123	7.9	8.6	9.3	9.9	10.6	11.2	11.9	12.6	13.2	13.9	14.5	15.2	15.9	16.5	17.2	17.8	18.5	19.2	19.8	20.5	21.2	21.8	22.5	23.1	23.8	24.5	25.1	25.8	26.4	27.1	27.8	28.4	29.1			
122	8.1	8.7	9.4	10.1	10.7	11.4	12.1	12.8	13.4	14.1	14.8	15.5	16.1	16.8	17.5	18.1	18.8	19.5	20.2	20.8	21.5	22.2	22.8	23.5	24.2	24.9	25.5	26.2	26.9	27.5	28.2	28.9	29.6			
121	8.2	8.9	9.6	10.2	10.9	11.6	12.3	13.0	13.7	14.3	15.0	15.7	16.4	17.1	17.8	18.4	19.1	19.8	20.5	21.2	21.9	22.5	23.2	23.9	24.6	25.3	26.0	26.6	27.3	28.0	28.7	29.4	30.1			
120	8.3	9.0	9.7	10.4	11.1	11.8	12.5	13.2	13.9	14.6	15.3	16.0	16.7	17.4	18.1	18.8	19.4	20.1	20.8	21.5	22.2	22.9	23.6	24.3	25.0	25.7	26.4	27.1	27.8	28.5	29.2	29.9	30.6			
119	8.5	9.2	9.9	10.6	11.3	12.0	12.7	13.4	14.1	14.8	15.5	16.2	16.9	17.7	18.4	19.1	19.8	20.5	21.2	21.9	22.6	23.3	24.0	24.7	25.4	26.1	26.8	27.5	28.2	29.0	29.7	30.4	31.1			
118	8.6	9.3	10.1	10.8	11.5	12.2	12.9	13.6	14.4	15.1	15.8	16.5	17.2	18.0	18.7	19.4	20.1	20.8	21.5	22.3	23.0	23.7	24.4	25.1	25.9	26.6	27.3	28.0	28.7	29.4	30.2	30.9	31.6			
117	8.8	9.5	10.2	11.0	11.7	12.4	13.1	13.9	14.6	15.3	16.1	16.8	17.5	18.3	19.0	19.7	20.5	21.2	21.9	22.6	23.4	24.1	24.8	25.6	26.3	27.0	27.8	28.5	29.2	30.0	30.7	31.4	32.1			
116	8.9	9.7	10.4	11.1	11.9	12.6	13.4	14.1	14.9	15.6	16.3	17.1	17.8	18.6	19.3	20.1	20.8	21.6	22.3	23.0	23.8	24.5	25.3	26.0	26.8	27.5	28.2	29.0	29.7	30.5	31.2	32.0	32.7			
115	9.1	9.8	10.6	11.3	12.1	12.9	13.6	14.4	15.1	15.9	16.6	17.4	18.1	18.9	19.7	20.4	21.2	21.9	22.7	23.4	24.2	25.0	25.7	26.5	27.2	28.0	28.7	29.5	30.2	31.0	31.8	32.5	33.3			
Weight (kg)	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44			

Height (cm)	145–175 cm tall																																		
	175	6.2	6.5	6.9	7.2	7.5	7.8	8.2	8.5	8.8	9.1	9.5	9.8	10.1	10.4	10.8	11.1	11.4	11.8	12.1	12.4	12.7	13.1	13.4	13.7	14.0	14.4	14.7	15.0	15.3	15.7	16.0	16.3	16.7	17.0
174	6.3	6.6	6.9	7.3	7.6	7.9	8.3	8.6	8.9	9.2	9.6	9.9	10.2	10.6	10.9	11.2	11.6	11.9	12.2	12.6	12.9	13.2	13.5	13.9	14.2	14.5	14.9	15.2	15.5	15.9	16.2	16.5	16.8	17.2	
173	6.3	6.7	7.0	7.4	7.7	8.0	8.4	8.7	9.0	9.4	9.7	10.0	10.4	10.7	11.0	11.4	11.7	12.0	12.4	12.7	13.0	13.4	13.7	14.0	14.4	14.7	15.0	15.4	15.7	16.0	16.4	16.7	17.0	17.4	
172	6.4	6.8	7.1	7.4	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.1	10.5	10.8	11.2	11.5	11.8	12.2	12.5	12.8	13.2	13.5	13.9	14.2	14.5	14.9	15.2	15.5	15.9	16.2	16.6	16.9	17.2	17.6	
171	6.5	6.8	7.2	7.5	7.9	8.2	8.5	8.9	9.2	9.6	9.9	10.3	10.6	10.9	11.3	11.6	12.0	12.3	12.7	13.0	13.3	13.7	14.0	14.4	14.7	15.0	15.4	15.7	16.1	16.4	16.8	17.1	17.4	17.8	
170	6.6	6.9	7.3	7.6	8.0	8.3	8.7	9.0	9.3	9.7	10.0	10.4	10.7	11.1	11.4	11.8	12.1	12.5	12.8	13.1	13.5	13.8	14.2	14.5	14.9	15.2	15.6	15.9	16.3	16.6	17.0	17.3	17.6	18.0	
169	6.7	7.0	7.4	7.7	8.1	8.4	8.8	9.1	9.5	9.8	10.2	10.5	10.9	11.2	11.6	11.9	12.3	12.6	13.0	13.3	13.7	14.0	14.4	14.7	15.1	15.4	15.8	16.1	16.5	16.8	17.2	17.5	17.9	18.2	
168	6.7	7.1	7.4	7.8	8.1	8.5	8.9	9.2	9.6	9.9	10.3	10.6	11.0	11.3	11.7	12.0	12.4	12.8	13.1	13.5	13.8	14.2	14.5	14.9	15.2	15.6	15.9	16.3	16.7	17.0	17.4	17.7	18.1	18.4	
167	6.8	7.2	7.5	7.9	8.2	8.6	9.0	9.3	9.7	10.0	10.4	10.8	11.1	11.5	11.8	12.2	12.5	12.9	13.3	13.6	14.0	14.3	14.7	15.1	15.4	15.8	16.1	16.5	16.9	17.2	17.6	17.9	18.3	18.6	
166	6.9	7.3	7.6	8.0	8.3	8.7	9.1	9.4	9.8	10.2	10.5	10.9	11.2	11.6	12.0	12.3	12.7	13.1	13.4	13.8	14.2	14.5	14.9	15.2	15.6	16.0	16.3	16.7	17.1	17.4	17.8	18.1	18.5	18.9	
165	7.0	7.3	7.7	8.1	8.4	8.8	9.2	9.6	9.9	10.3	10.7	11.0	11.4	11.8	12.1	12.5	12.9	13.2	13.6	14.0	14.3	14.7	15.1	15.4	15.8	16.2	16.5	16.9	17.3	17.6	18.0	18.4	18.7	19.1	
164	7.1	7.4	7.8	8.2	8.6	8.9	9.3	9.7	10.0	10.4	10.8	11.2	11.5	11.9	12.3	12.6	13.0	13.4	13.8	14.1	14.5	14.9	15.2	15.6	16.0	16.4	16.7	17.1	17.5	17.8	18.2	18.6	19.0	19.3	
163	7.2	7.5	7.9	8.3	8.7	9.0	9.4	9.8	10.2	10.5	10.9	11.3	11.7	12.0	12.4	12.8	13.2	13.5	13.9	14.3	14.7	15.1	15.4	15.8	16.2	16.6	16.9	17.3	17.7	18.1	18.4	18.8	19.2	19.6	
162	7.2	7.6	8.0	8.4	8.8	9.1	9.5	9.9	10.3	10.7	11.1	11.4	11.8	12.2	12.6	13.0	13.3	13.7	14.1	14.5	14.9	15.2	15.6	16.0	16.4	16.8	17.1	17.5	17.9	18.3	18.7	19.1	19.4	19.8	
161	7.3	7.7	8.1	8.5	8.9	9.3	9.6	10.0	10.4	10.8	11.2	11.6	12.0	12.3	12.7	13.1	13.5	13.9	14.3	14.7	15.0	15.4	15.8	16.2	16.6	17.0	17.4	17.7	18.1	18.5	18.9	19.3	19.7	20.1	
160	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.5	10.9	11.3	11.7	12.1	12.5	12.9	13.3	13.7	14.1	14.5	14.8	15.2	15.6	16.0	16.4	16.8	17.2	17.6	18.0	18.4	18.8	19.1	19.5	19.9	20.3	
159	7.5	7.9	8.3	8.7	9.1	9.5	9.9	10.3	10.7	11.1	11.5	11.9	12.3	12.7	13.1	13.4	13.8	14.2	14.6	15.0	15.4	15.8	16.2	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	
158	7.6	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	11.6	12.0	12.4	12.8	13.2	13.6	14.0	14.4	14.8	15.2	15.6	16.0	16.4	16.8	17.2	17.6	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	
157	7.7	8.1	8.5	8.9	9.3	9.7	10.1	10.5	11.0	11.4	11.8	12.2	12.6	13.0	13.4	13.8	14.2	14.6	15.0	15.4	15.8	16.2	16.6	17.0	17.4	17.9	18.3	18.7	19.1	19.5	19.9	20.3	20.7	21.1	
156	7.8	8.2	8.6	9.0	9.5	9.9	10.3	10.7	11.1	11.5	11.9	12.3	12.7	13.1	13.6	14.0	14.4	14.8	15.2	15.6	16.0	16.4	16.8	17.3	17.7	18.1	18.5	18.9	19.3	19.7	20.1	20.5	21.0	21.4	
155	7.9	8.3	8.7	9.2	9.6	10.0	10.4	10.8	11.2	11.7	12.1	12.5	12.9	13.3	13.7	14.2	14.6	15.0	15.4	15.8	16.2	16.6	17.1	17.5	17.9	18.3	18.7	19.1	19.6	20.0	20.4	20.8	21.2	21.6	
154	8.0	8.4	8.9	9.3	9.7	10.1	10.5	11.0	11.4	11.8	12.2	12.6	13.1	13.5	13.9	14.3	14.8	15.2	15.6	16.0	16.4	16.9	17.3	17.7	18.1	18.6	19.0	19.4	19.8	20.2	20.7	21.1	21.5	21.9	
153	8.1	8.5	9.0	9.4	9.8	10.3	10.7	11.1	11.5	12.0	12.4	12.8	13.2	13.7	14.1	14.5	15.0	15.4	15.8	16.2	16.7	17.1	17.5	17.9	18.4	18.8	19.2	19.7	20.1	20.5	20.9	21.4	21.8	22.2	
152	8.2	8.7	9.1	9.5	10.0	10.4	10.8	11.3	11.7	12.1	12.6	13.0	13.4	13.9	14.3	14.7	15.1	15.6	16.0	16.4	16.9	17.3	17.7	18.2	18.6	19.0	19.5	19.9	20.3	20.8	21.2	21.6	22.1	22.5	
151	8.3	8.8	9.2	9.6	10.1	10.5	11.0	11.4	11.8	12.3	12.7	13.2	13.6	14.0	14.5	14.9	15.4	15.8	16.2	16.7	17.1	17.5	18.0	18.4	18.9	19.3	19.7	20.2	20.6	21.1	21.5	21.9	22.4	22.8	
150	8.4	8.9	9.3	9.8	10.2	10.7	11.1	11.6	12.0	12.4	12.9	13.3	13.8	14.2	14.7	15.1	15.6	16.0	16.4	16.9	17.3	17.8	18.2	18.7	19.1	19.6	20.0	20.4	20.9	21.3	21.8	22.2	22.7	23.1	
149	8.6	9.0	9.5	9.9	10.4	10.8	11.3	11.7	12.2	12.6	13.1	13.5	14.0	14.4	14.9	15.3	15.8	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	21.6	22.1	22.5	23.0	23.4	
148	8.7	9.1	9.6	10.0	10.5	11.0	11.4	11.9	12.3	12.8	13.2	13.7	14.2	14.6	15.1	15.5	16.0	16.4	16.9	17.3	17.8	18.3	18.7	19.2	19.6	20.1	20.5	21.0	21.5	21.9	22.4	22.8	23.3	23.7	
147	8.8	9.3	9.7	10.2	10.6	11.1	11.6	12.0	12.5	13.0	13.4	13.9	14.3	14.8	15.3	15.7	16.2	16.7	17.1	17.6	18.0	18.5	19.0	19.4	19.9	20.4	20.8	21.3	21.8	22.2	22.7	23.1	23.6	24.1	
146	8.9	9.4	9.9	10.3	10.8	11.3	11.7	12.2	12.7	13.1	13.6	14.1	14.5	15.0	15.5	16.0	16.4	16.9	17.4	17.8	18.3	18.8	19.2	19.7	20.2	20.6	21.1	21.6	22.0	22.5	23.0	23.5	23.9	24.4	
145	9.0	9.5	10.0	10.5	10.9	11.4	11.9	12.4	12.8	13.3	13.8	14.3	14.7	15.2	15.7	16.2	16.6	17.1	17.6	18.1	18.5	19.0	19.5	20.0	20.5	20.9	21.4	21.9	22.4	22.8	23.3	23.8	24.3	24.7	
Weight (kg)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

Height (cm)	176–200 cm tall																																																																																						
	200	199	198	197	196	195	194	193	192	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119	118	117	116	115	114
200	11.3	11.5	11.8	12.0	12.3	12.5	12.8	13.0	13.3	13.5	13.8	14.0	14.3	14.5	14.8	15.0	15.3	15.5	15.8	16.0	16.3	16.5	16.8	17.0	17.3	17.5	17.8	18.0	18.3	18.5	18.8	19.0	19.3	19.5	19.8	20.0	20.3																																																		
199	11.4	11.6	11.9	12.1	12.4	12.6	12.9	13.1	13.4	13.6	13.9	14.1	14.4	14.6	14.9	15.2	15.4	15.7	15.9	16.2	16.4	16.7	16.9	17.2	17.4	17.7	17.9	18.2	18.4	18.7	18.9	19.2	19.4	19.7	19.9	20.2	20.5																																																		
198	11.5	11.7	12.0	12.2	12.5	12.8	13.0	13.3	13.5	13.8	14.0	14.3	14.5	14.8	15.0	15.3	15.6	15.8	16.1	16.3	16.6	16.8	17.1	17.3	17.6	17.9	18.1	18.4	18.6	18.9	19.1	19.4	19.6	19.9	20.2	20.4	20.7																																																		
197	11.6	11.9	12.1	12.4	12.6	12.9	13.1	13.4	13.7	13.9	14.2	14.4	14.7	14.9	15.2	15.5	15.7	16.0	16.2	16.5	16.7	17.0	17.3	17.5	17.8	18.0	18.3	18.6	18.8	19.1	19.3	19.6	19.8	20.1	20.4	20.6	20.9																																																		
196	11.7	12.0	12.2	12.5	12.8	13.0	13.3	13.5	13.8	14.1	14.3	14.6	14.8	15.1	15.4	15.6	15.9	16.1	16.4	16.7	16.9	17.2	17.4	17.7	18.0	18.2	18.5	18.7	19.0	19.3	19.5	19.8	20.0	20.3	20.6	20.8	21.1																																																		
195	11.8	12.1	12.4	12.6	12.9	13.1	13.4	13.7	13.9	14.2	14.5	14.7	15.0	15.3	15.5	15.8	16.0	16.3	16.6	16.8	17.1	17.4	17.6	17.9	18.1	18.4	18.7	18.9	19.2	19.5	19.7	20.0	20.2	20.5	20.8	21.0	21.3																																																		
194	12.0	12.2	12.5	12.8	13.0	13.3	13.6	13.8	14.1	14.3	14.6	14.9	15.1	15.4	15.7	15.9	16.2	16.5	16.7	17.0	17.3	17.5	17.8	18.1	18.3	18.6	18.9	19.1	19.4	19.7	19.9	20.2	20.5	20.7	21.0	21.3	21.5																																																		
193	12.1	12.3	12.6	12.9	13.2	13.4	13.7	14.0	14.2	14.5	14.8	15.0	15.3	15.6	15.8	16.1	16.4	16.6	16.9	17.2	17.5	17.7	18.0	18.3	18.5	18.8	19.1	19.3	19.6	19.9	20.1	20.4	20.7	20.9	21.2	21.5	21.7																																																		
192	12.2	12.5	12.7	13.0	13.3	13.6	13.8	14.1	14.4	14.6	14.9	15.2	15.5	15.7	16.0	16.3	16.5	16.8	17.1	17.4	17.6	17.9	18.2	18.4	18.7	19.0	19.3	19.5	19.8	20.1	20.3	20.6	20.9	21.2	21.4	21.7	22.0																																																		
191	12.3	12.6	12.9	13.2	13.4	13.7	14.0	14.3	14.5	14.8	15.1	15.4	15.6	15.9	16.2	16.4	16.7	17.0	17.3	17.5	17.8	18.1	18.4	18.6	18.9	19.2	19.5	19.7	20.0	20.3	20.6	20.8	21.1	21.4	21.7	21.9	22.2																																																		
190	12.5	12.7	13.0	13.3	13.6	13.9	14.1	14.4	14.7	15.0	15.2	15.5	15.8	16.1	16.3	16.6	16.9	17.2	17.5	17.7	18.0	18.3	18.6	18.8	19.1	19.4	19.7	19.9	20.2	20.5	20.8	21.1	21.3	21.6	21.9	22.2	22.4																																																		
189	12.6	12.9	13.2	13.4	13.7	14.0	14.3	14.6	14.8	15.1	15.4	15.7	16.0	16.2	16.5	16.8	17.1	17.4	17.6	17.9	18.2	18.5	18.8	19.0	19.3	19.6	19.9	20.2	20.4	20.7	21.0	21.3	21.6	21.8	22.1	22.4	22.7																																																		
188	12.7	13.0	13.3	13.6	13.9	14.1	14.4	14.7	15.0	15.3	15.6	15.8	16.1	16.4	16.7	17.0	17.3	17.5	17.8	18.1	18.4	18.7	19.0	19.2	19.5	19.8	20.1	20.4	20.7	20.9	21.2	21.5	21.8	22.1	22.4	22.6	22.9																																																		
187	12.9	13.2	13.4	13.7	14.0	14.3	14.6	14.9	15.2	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.4	21.7	22.0	22.3	22.6	22.9	23.2																																																		
186	13.0	13.3	13.6	13.9	14.2	14.5	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.8	17.1	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.5	22.8	23.1	23.4																																																		
185	13.1	13.4	13.7	14.0	14.3	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7																																																		
184	13.3	13.6	13.9	14.2	14.5	14.8	15.1	15.4	15.7	15.9	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.4	22.7	23.0	23.3	23.6	23.9																																																		
183	13.4	13.7	14.0	14.3	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2																																																		
182	13.6	13.9	14.2	14.5	14.8	15.1	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.6	22.9	23.2	23.5	23.8	24.2	24.5																																																		
181	13.7	14.0	14.3	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.6	22.9	23.2	23.5	23.8	24.1	24.4	24.7																																																		
180	13.9	14.2	14.5	14.8	15.1	15.4	15.7	16.0	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.5	23.8	24.1	24.4	24.7	25.0																																																		
179	14.0	14.4	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.7	25.0	25.3																																																		
178	14.2	14.5	14.8	15.1	15.5	15.8	16.1	16.4	16.7	17.0	17.4	17.7	18.0	18.3	18.6	18.9	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.5	21.8	22.1	22.4	22.7	23.0	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.6																																																		
177	14.4	14.7	15.0	15.3	15.6	16.0	16.3	16.6	16.9	17.2	17.6	17.9	18.2	18.5	18.8	19.2	19.5	19.8	20.1	20.4	20.7	21.1	21.4	21.7	22.0	22.3	22.7	23.0	23.3	23.6	23.9	24.3	24.6	24.9	25.2	25.5	25.9																																																		
176	14.5	14.9	15.2	15.5	15.8	16.1	16.5	16.8	17.1	17.4	17.8	18.1	18.4	18.7	19.0	19.4	19.7	20.0	20.3	20.7	21.0	21.3	21.6	22.0	22.3	22.6	22.9	23.2	23.6	23.9	24.2	24.5	24.9	25.2	25.5	25.8	26.1																																																		
Weight (kg)	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81																																																		

**BMI-for-Age Look-up Table, BOYS 5–17 Years (WHO 2007)**

Age (years: months)	SAM Less than –3 (BMI)	MAM –3 to less than –2 (BMI)	Normal –2 to less than +1 (BMI)	Overweight +1 to +2 (BMI)	Obesity Greater than +2 (BMI)
5:1	< 12.1	12.1–12.9	13.0–16.6	16.7–18.3	> 18.3
5:6	< 12.1	12.1–12.9	13.0–16.7	16.8–18.4	> 18.4
6:0	< 12.1	12.1–12.9	13.0–16.8	16.9–18.5	> 18.5
6:6	< 12.2	12.2–13.0	13.1–16.9	17.0–18.7	> 18.7
7:0	< 12.3	12.3–13.0	13.1–17.0	17.1–19.0	> 19.0
7:6	< 12.3	12.3–13.1	13.2–17.2	17.3–19.3	> 19.3
8:0	< 12.4	12.4–13.2	13.3–17.4	17.5–19.7	> 19.7
8:6	< 12.5	12.5–13.3	13.4–17.7	17.8–20.1	> 20.1
9:0	< 12.6	12.6–13.4	13.5–17.9	18.0–20.5	> 20.5
9:6	< 12.7	12.7–13.5	13.6–18.2	18.3–20.9	> 20.9
10:0	< 12.8	12.8–13.6	13.7–18.5	18.6–21.4	> 21.4
10:6	< 12.9	12.9–13.8	13.9–18.8	18.9–21.9	> 21.9
11:0	< 13.1	13.1–14.0	14.1–19.2	19.3–22.5	> 22.5
11:6	< 13.2	13.2–14.1	14.2–19.5	19.6–23.0	> 23.0
12:0	< 13.4	13.4–14.4	14.5–19.9	20.0–23.6	> 23.6
12:6	< 13.6	13.6–14.6	14.7–20.4	20.5–24.2	> 24.2
13:0	< 13.8	13.8–14.8	14.9–20.8	20.9–24.8	> 24.8
13:6	< 14.0	14.0–15.1	15.2–21.3	21.4–25.3	> 25.3
14:0	< 14.3	14.3–15.4	15.5–21.8	21.9–25.9	> 25.9
14:6	< 14.5	14.5–15.6	15.7–22.2	22.3–26.5	> 26.5
15:0	< 14.7	14.7–15.9	16.0–22.7	22.8–27.0	> 27.0
15:6	< 14.9	14.9–16.2	16.3–23.1	23.2–27.4	> 27.4
16:0	< 15.1	15.1–16.4	16.5–23.5	23.6–27.9	> 27.9
16:6	< 15.3	15.3–16.6	16.7–23.9	24.0–28.3	> 28.3
17:0	< 15.4	15.4–16.8	16.9–24.3	24.4–28.6	> 28.6
17:6	< 15.6	15.6–17.0	17.1–24.6	24.7–29.0	> 29.0
18:0	< 15.7	15.7–17.2	17.3–24.9	25.0–29.2	> 29.2

**BMI-for-Age Look-up Table, GIRLS 5–17 Years (WHO 2007)**

Age (years: months)	SAM Less than –3 (BMI)	MAM –3 to less than –2 (BMI)	Normal –2 to less than +1 (BMI)	Overweight +1 to +2 (BMI)	Obesity Greater than +2 (BMI)
5:1	< 11.8	11.8–12.6	12.7–16.9	17.0–18.9	> 18.9
5:6	< 11.7	11.7–12.6	12.7–16.9	17.0–19.0	> 19.0
6:0	< 11.7	11.7–12.6	12.7–17.0	17.1–19.2	> 19.2
6:6	< 11.7	11.7–12.6	12.7–17.1	17.2–19.5	> 19.5
7:0	< 11.8	11.8–12.6	12.7–17.3	17.4–19.8	> 19.8
7:6	< 11.8	11.8–12.7	12.8–17.5	17.6–20.1	> 20.1
8:0	< 11.9	11.9–12.8	12.9–17.7	17.8–20.6	> 20.6
8:6	< 12.0	12.0–12.9	13.0–18.0	18.1–21.0	> 21.0
9:0	< 12.1	12.1–13.0	13.1–18.3	18.4–21.5	> 21.5
9:6	< 12.2	12.2–13.2	13.3–18.7	18.8–22.0	> 22.0
10:0	< 12.4	12.4–13.4	13.5–19.0	19.1–22.6	> 22.6
10:6	< 12.5	12.5–13.6	13.7–19.4	19.5–23.1	> 23.1
11:0	< 12.7	12.7–13.8	13.9–19.9	20.0–23.7	> 23.7
11:6	< 12.9	12.9–14.0	14.1–20.3	20.4–24.3	> 24.3
12:0	< 13.2	13.2–14.3	14.4–20.8	20.9–25.0	> 25.0
12:6	< 13.4	13.4–14.6	14.7–21.3	21.4–25.6	> 25.6
13:0	< 13.6	13.6–14.8	14.9–21.8	21.9–26.2	> 26.2
13:6	< 13.8	13.8–15.1	15.2–22.3	22.4–26.8	> 26.8
14:0	< 14.0	14.0–15.3	15.4–22.7	22.8–27.3	> 27.3
14:6	< 14.2	14.2–15.6	15.7–23.1	23.2–27.8	> 27.8
15:0	< 14.4	14.4–15.8	15.9–23.5	23.6–28.2	> 28.2
15:6	< 14.5	14.5–15.9	16.0–23.8	23.9–28.6	> 28.6
16:0	< 14.6	14.6–16.1	16.2–24.1	24.2–28.9	> 28.9
16:6	< 14.7	14.7–16.2	16.3–24.3	24.4–29.1	> 29.1
17:0	< 14.7	14.7–16.3	16.4–24.5	24.6–29.3	> 29.4
17:6	< 14.7	14.7–16.3	16.4–24.6	24.7–29.4	> 29.4
18:0	< 14.7	14.7–16.3	16.4–24.8	24.9–29.5	> 29.5

## 12 HOW TO MEASURE MID-UPPER ARM CIRCUMFERENCE (MUAC)

MUAC stands for 'mid-upper arm circumference'. A MUAC tape is a simple tool to measure nutritional status.

MUAC can be used to measure nutritional status for anyone over 6 months. MUAC should always be used to assess the nutritional status of pregnant and post-partum women.

Tanzania uses four different tapes for different age groups.

1. Children 6–59 months
2. Children 5–9 years
3. Children 10–14 years
4. Adolescents 15–17 years and adults (Cutoffs for older adolescents are the same as for adults, but they are grouped here separately because they are under 18 years of age. Cutoffs are higher for women who are pregnant or up to 6 months post-partum.)

Group	Severe acute malnutrition (SAM)	Moderate acute malnutrition (MAM)	Normal nutritional status
Children 6–59 months	< 11.5 cm	≥ 11.5 to < 12.5 cm	≥ 12.5 cm
Children 5–9 years	< 13.5 cm	≥ 13.5 to < 14.5 cm	≥ 14.5 cm
Children 10–14 years	< 16.0 cm	≥ 16.0 to < 18.5 cm	≥ 18.5 cm
Adolescents 15–17 and adults	< 18.5 cm	≥ 18.5 to < 22.0 cm	≥ 22.0 cm
Pregnant/≤ 6 months post-partum women	< 19.0 cm	≥ 19.0 to < 23.0 cm	≥ 23.0 cm

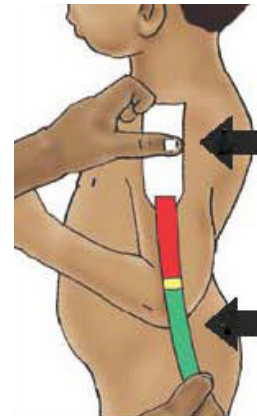
# HOW TO MEASURE MID-UPPER ARM CIRCUMFERENCE (MUAC) (CONTINUED)



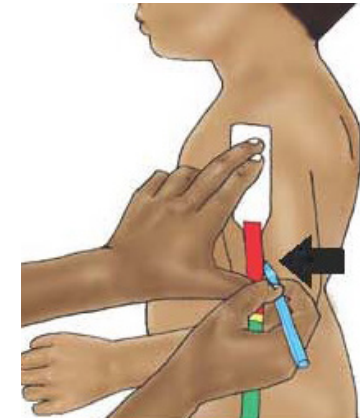
1. Bend the left arm at a 90° angle.



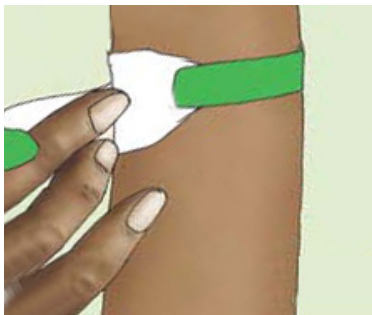
2. Find the top of the shoulder and the tip of the elbow.



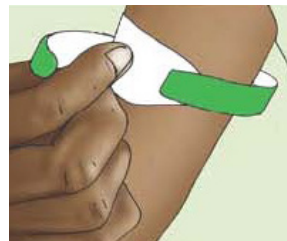
3. Keep the tape at eye level and place it at the top of the shoulder. Put your right thumb on the tape where it meets the tip of the elbow (endpoint).



4. Find the middle of the upper arm by carefully folding the endpoint to the top edge of the tape. Place your left thumb on the point where the tape folds (midpoint). Mark the midpoint with a finger or pen.



5. Straighten the arm and wrap the tape around the arm at the midpoint.

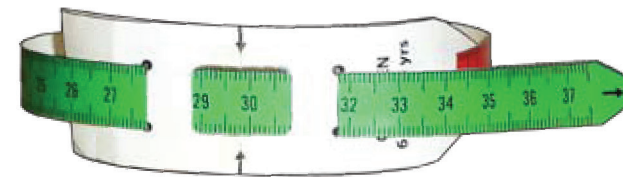


Too loose

6. Place the tape through the window and correct the tape tension.






Too tight



7. Read the measurement in cm in the window where the arrows point inward.

8. Record the measurement to the nearest 0.1 cm and note the color.

# ALGORITHM FOR MANAGING MALNUTRITION IN CHILDREN 6 MONTHS TO 14 YEARS OF AGE

ASSESS	
ASK the mother/caregiver or check medical records	LOOK AND FEEL
<ol style="list-style-type: none"> <li>Has the child had: <ul style="list-style-type: none"> <li>A persistent cough?</li> <li>Diarrhoea for more than 7 days?</li> <li>Active tuberculosis (TB)? (On treatment?)</li> <li>A chronic opportunistic infection (OI) or malignancy?</li> </ul> </li> <li>Is the child breastfeeding?</li> </ol>	<ol style="list-style-type: none"> <li>Look for signs of severe wasting (loss of muscle bulk, sagging skin or buttocks).</li> <li>Check for oedema on both feet or legs or the base of the spine.</li> <li>Measure mid-upper arm circumference (MUAC).</li> <li>Measure the child's weight in kg to the nearest 100 g and height/length to the nearest cm.</li> <li>Find the weight-for-height z-score (WHZ).</li> <li>Look at the shape of the growth curve. <ul style="list-style-type: none"> <li>Losing weight? </li> <li>Flattening? </li> <li>Gaining weight? </li> </ul> </li> </ol>

# ALGORITHM FOR MANAGING MALNUTRITION IN CHILDREN 6 MONTHS TO 14 YEARS OF AGE (*CONTINUED*)

CRITERIA AND CUTOFFS	CLASSIFICATION	NUTRITION CARE PLAN
<b>Bilateral pitting oedema</b> (any grade) <b>OR severe visible wasting</b> <b>OR MUAC</b> 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm <b>OR WHZ</b> < –3 <b>OR BMI-for-age</b> (5–14 years) < –3 <b>AND</b> no appetite <b>AND/OR</b> medical complications (marasmic kwashiorkor, child not alert, lethargy, severe anaemia, high fever, persistent diarrhoea, convulsions, lower respiratory tract infection, dehydration, hypoglycaemia, hypothermia)	<b>Severe acute malnutrition (SAM) with no appetite and/or medical complications</b>	<b>Nutrition Care Plan C1 (inpatient)</b>
<b>No bilateral pitting oedema</b> <b>AND severe visible wasting</b> <b>OR MUAC</b> 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm <b>OR WHZ</b> < –3 <b>OR BMI-for-age</b> (5–14 years old) < –3 <b>AND</b> appetite <b>AND</b> no other medical complications <b>AND</b> child clinically well and alert <b>AND</b> caregiver able to manage SAM at home and return in 14 days	<b>SAM with appetite and no medical complications</b>	<b>Nutrition Care Plan C2 (outpatient)</b>



# ALGORITHM FOR MANAGING MALNUTRITION IN CHILDREN 6 MONTHS TO 14 YEARS OF AGE (*CONTINUED*)

CRITERIA AND CUTOFFS	CLASSIFICATION	NUTRITION CARE PLAN
<b>Confirmed weight loss &gt; 5% since last visit OR growth curve flattening</b> <b>OR MUAC</b> 6–59 months: ≥ 11.5 to < 12.5 cm 5–9 years: ≥ 13.5 to < 14.5 cm 10–14 years: ≥ 16.0 to < 18.5 cm <b>OR WHZ ≥ –3 and &lt; –2</b> <b>OR BMI-for-age z-score (5–14 years) ≥ –3 and &lt; –2</b>	<b>Moderate acute malnutrition (MAM)</b>	<b>Nutrition Care Plan B</b>
	<b>Condition with increased nutritional needs</b> (chronic lung disease, TB, persistent diarrhoea, or other chronic opportunistic infection or malignancy)	
<b>Weight gain parallel to/higher than median growth curve</b> <b>OR MUAC</b> 6–59 months: ≥ 12.5 cm 5–9 years: ≥ 14.5 cm 10–14 years: ≥ 18.5 cm <b>OR WHZ ≥ –2 and ≤ +2</b> <b>OR BMI-for-age z-score (5–14 years) ≥ –2 and ≤ +1</b>	<b>Normal nutritional status</b>	<b>Nutrition Care Plan A</b>
<b>WHZ ≥ +2 to ≤ +3</b> <b>OR BMI-for-age (5–14 years) ≥ +1 to ≤ +2</b>	<b>Overweight</b>	<b>Nutrition Care Plan D</b>
<b>WHZ &gt; +3</b> <b>OR BMI-for-age (5–14 years) &gt; +2</b>	<b>Obesity</b>	<b>Nutrition Care Plan D</b>

## 14 ALGORITHM FOR MANAGING MALNUTRITION IN ADOLESCENTS 15–17 YEARS OF AGE AND ADULTS

ASSESS	
ASK or check medical records	LOOK AND FEEL
<ol style="list-style-type: none"> <li>Has the client lost weight in the past month/since the last visit?</li> <li>Has the client had: <ul style="list-style-type: none"> <li>Persistent cough?</li> <li>Persistent diarrhoea?</li> <li>Active tuberculosis (TB)? (On treatment?)</li> <li>A chronic opportunistic infection (OI) or malignancy (e.g., oesophageal infections)?</li> <li>Mouth sores/oral thrush?</li> <li>Nausea or vomiting?</li> <li>Persistent fatigue?</li> <li>Poor appetite?</li> </ul> </li> <li>Has the client's body composition changed noticeably? <ul style="list-style-type: none"> <li>Thinning of the limbs and face?</li> <li>Fat distribution on the limbs, breasts, stomach, back?</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>Look for signs of severe wasting (significant fat reduction in buttocks; loss of muscle bulk around shoulders, arms, ribs or legs; sagging skin).</li> <li>Check for oedema on either both legs or the base of the spine. If present, rule out non-nutritional causes (pre-eclampsia, kidney problems, elephantiasis, heart failure or wet beriberi [vitamin B1 deficiency with oedema]).</li> <li>Check for other danger signs (severe dehydration, severe anaemia, high fever, weakness, lethargy, rapid breathing, unconsciousness, convulsions, client not alert, hypoglycaemia, extensive skin lesions).</li> <li>Measure weight in kg to the nearest 100 g and height to the nearest cm.</li> <li>Compute body mass index (BMI).</li> <li>Measure mid-upper arm circumference (MUAC) for pregnant women, women up to 6 months post-partum and adults who cannot stand straight to be measured.</li> </ol>

# ALGORITHM FOR MANAGING MALNUTRITION IN ADOLESCENTS 15–17 YEARS OF AGE AND ADULTS (*CONTINUED*)

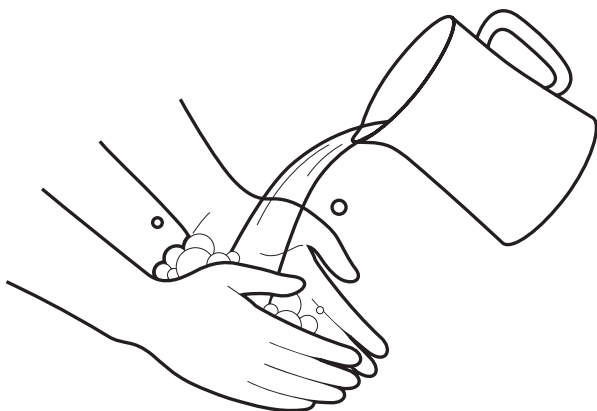
CRITERIA AND CUTOFFS	CLASSIFICATION	NUTRITION CARE PLAN
<b>Bilateral pitting oedema</b> (any grade) <b>OR confirmed unintentional weight loss of</b> > 10% since the last visit <b>OR BMI</b> (not pregnant or ≤ 6 months post-partum): < 16 <b>OR BMI-for-age z-score</b> (15–17 years) < –3 <b>OR MUAC</b> Not pregnant/≤ 6 months post-partum: < 18.5 cm Pregnant/≤ 6 months post-partum: < 19.0 cm <b>AND</b> no appetite <b>AND/OR</b> medical complications (severe dehydration, vomiting or severe anaemia, nausea, mouth sores/oral thrush, active TB, other opportunistic infections, persistent diarrhoea, convulsions, high fever)	Severe acute malnutrition (SAM) with no appetite or with medical complications	Nutrition Care Plan C1 (inpatient)
<b>No bilateral pitting oedema</b> <b>AND confirmed unintentional weight loss of</b> > 10% since the last visit <b>OR BMI</b> (not pregnant or ≤ 6 months post-partum): < 16 <b>OR BMI-for-age z-score</b> (15–17 years) < –3 <b>OR MUAC</b> Not pregnant/≤ 6 months post-partum: < 18.5 cm Pregnant/≤ 6 months post-partum: < 19.0 cm <b>AND</b> appetite <b>AND</b> no other medical complication	SAM with appetite and no medical complications	Nutrition Care Plan C2 (outpatient)
<b>BMI</b> (not pregnant/≤ 6 months post-partum): ≥ 16.0 to < 18.5 <b>OR BMI-for-age z-score</b> (15–17 years) ≥ –3 and < –2 <b>OR MUAC</b> Not pregnant/≤ 6 months post-partum: ≥ 18.5 to < 22.0 cm Pregnant/≤ 6 months post-partum: ≥ 19.0 to < 23.0 cm	Moderate acute malnutrition (MAM)	Nutrition Care Plan B
<b>Confirmed unintentional weight loss of</b> > 5% since last visit	Significant weight loss	
<b>Chronic lung disease, TB, persistent diarrhoea, other chronic OI or malignancy</b>	Signs of symptomatic disease	

# ALGORITHM FOR MANAGING MALNUTRITION IN ADOLESCENTS 15–17 YEARS OF AGE AND ADULTS (*CONTINUED*)

<b>BMI</b> (not pregnant or $\leq 6$ months post-partum) $\geq 18.5$ to $< 25.0$ <b>OR BMI-for-age z-score</b> (15–17 years) $\geq -2$ to $\leq +1$ <b>OR MUAC</b> Non pregnant/ $\leq 6$ months post-partum: $\geq 22.0$ cm Pregnant / $\leq 6$ months post-partum: $\geq 23.0$ cm	Normal nutritional status	Nutrition Care Plan A
<b>BMI</b> $\geq 25.0$ to $< 30.0$ <b>OR BMI-for-age</b> (15–17 years) $\geq +1$ to $\leq +2$	Overweight	Nutrition Care Plan D
<b>BMI</b> $\geq 30.0$ <b>OR BMI-for-age z-score</b> (15–17 years) $> +2$	Obesity	Nutrition Care Plan D

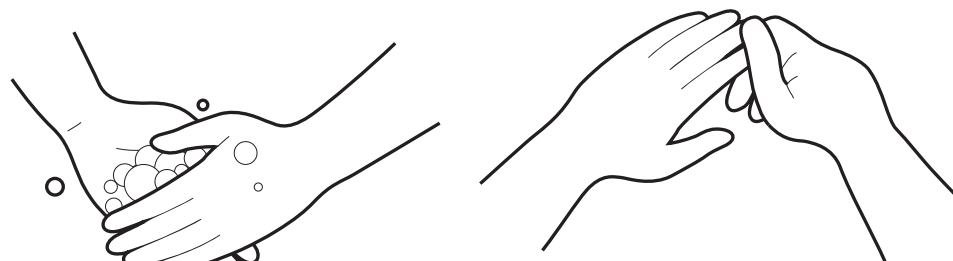
## 15 HOW TO WASH YOUR HANDS

1



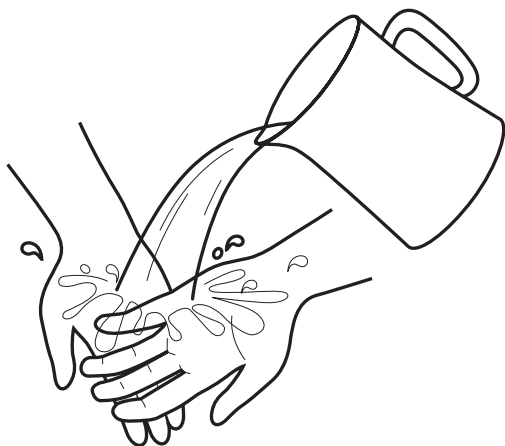
Wet your hands and lather them with soap or ash.

2



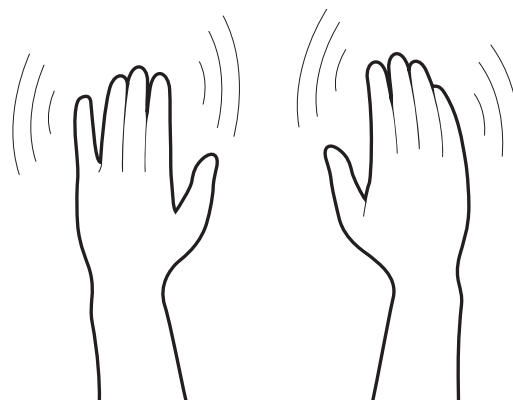
Rub your hands together and clean under your nails.

3



Rinse your hands with a stream of water.

4



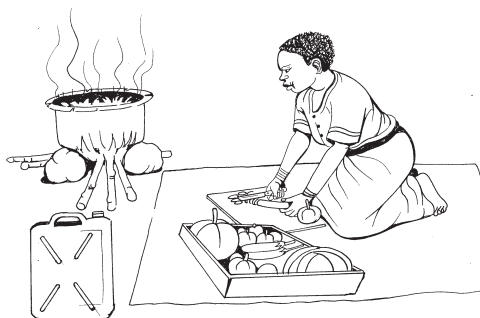
Shake excess water off your hands and air dry them.

## 16 CRITICAL TIMES TO WASH HANDS WITH SOAP OR ASH

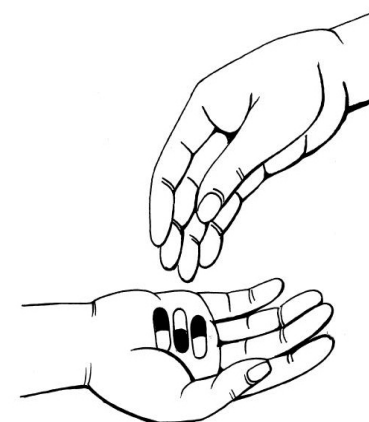
### BEFORE



Eating, breastfeeding or feeding a sick person



Cooking

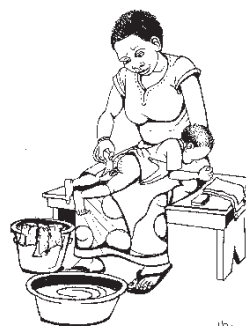


Giving or taking medicine

### AFTER

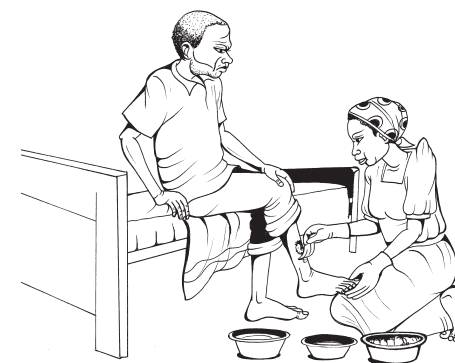


Defecating



Cleaning a baby

### BEFORE AND AFTER

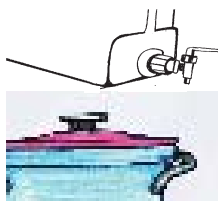


Caring for a sick person

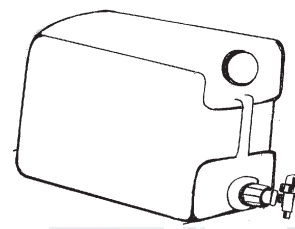
## 17 HOW TO TAKE CARE OF DRINKING AND COOKING WATER



Boil, filter or treat water for drinking, cooking or taking medicines.



Store the water in a container with a tight-fitting lid.



Serve the water with a clean ladle so that nothing dirty (your hand or a cup) touches it.

Source: Tanzania Marketing and Communications (T-MARC) Project. n.d. *Kumbusho: Njia za kuosha unazoweza kuzitekeleza kwa urahisi Unahifadhi vipi maji yako ya kunywa? Jinsi ya kutibu maji ya kunywa (counselling card).*



# 18 ENTRY, PRESCRIPTION AND EXIT CRITERIA FOR SPECIALISED FOOD PRODUCTS

Target group	Entry criteria	Specialised food product prescribed	Transition/exit criteria
Children 0 months to 14 years	<p><b><u>SAM</u></b></p> <p><b><u>0–&lt;6 months</u></b></p> <p><b>Bilateral pitting oedema</b>  <b>OR</b>  <b>Weight loss or failure to gain weight</b>  <b>OR WHZ &lt; –3</b>  <b>AND</b> inability to suckle effectively</p> <p><b><u>6 months–14 years old</u></b></p> <p><b>Bilateral pitting oedema</b>  <b>OR</b>  <b>Severe visible wasting</b>  <b>OR MUAC</b>          6–59 months: &lt; 11.5 cm          5–9 years: &lt; 13.5 cm          10–14 years: &lt; 16.0 cm  <b>OR WHZ &lt; –3</b></p>	<p><b><u>0–&lt;6 months</u></b></p> <p><b>Inpatient</b></p> <p>Stabilisation: If no oedema, 130 ml of F-100-Diluted/kg of body weight/day. If oedema, F-75 according to SAM protocol.</p> <p>Transition and rehabilitation: F-100-Diluted according to SAM protocol (F-100 Diluted if &lt; 6 months)</p> <p><b><u>6 months–14 years</u></b></p> <p><b>Inpatient</b></p> <p>Stabilisation: 130 ml of F-75/kg of body weight/day (100 ml if severe oedema)</p> <p>Transition: Days 1 and 2: Same amount of F-100; Day 3: Increase each feed by 10 ml until child reaches rehabilitation phase</p> <p>Rehabilitation: Enough F-100 or RUTF to provide 200 kcal/kg of body weight/day</p> <p><b>Outpatient</b></p> <p>Weekly take-home rations of RUTF:</p> <p>6–59 months old: 200 kcal/kg of body weight/day          5–9 years old: 75–100 kcal/kg of body weight/day          10–14 years old: 60–90 kcal/kg of body weight/day</p>	<p><b>6–59 months:</b> No bilateral pitting oedema for two consecutive visits, MUAC ≥ 11.5 cm, <b>WHZ</b> ≥ –2</p> <p><b>OR</b> 15% weight gain on two consecutive visits</p> <p><b>AND</b> appetite</p> <p><b>AND</b> medical problems stabilised or subsiding</p> <p><b>AND</b> continued weight gain of &gt; 5 g/kg of body weight/day</p>
	<p><b><u>Moderate acute malnutrition (MAM)</u></b></p> <p>Confirmed weight loss &gt; 5% since last visit</p> <p><b>OR MUAC</b>          6–59 months: ≥ 11.5 to &lt; 12.5 cm          5–9 years: ≥ 13.5 to &lt; 14.5 cm          10–14 years: ≥ 16.0 to &lt; 18.5 cm  <b>OR WHZ</b> ≥ –3 and &lt; –2</p>	<p>If child was treated for SAM, 1 packet of RUTF per day</p> <p><b>PLUS</b> 100 g of FBF/day for children 6 months to 9 years and 200 g of FBF/day for children 10–14 years old for 1 month</p> <p>If child was NOT treated for SAM, only FBF as above (no RUTF)</p>	<p><b>6–59 months:</b> MUAC ≥ 12.5 cm</p> <p><b>OR WHZ</b> ≥ –2 for two consecutive visits</p> <p><b>5–9 years:</b> MUAC ≥ 14.5 cm</p> <p><b>10–14 years:</b> MUAC ≥ 18.5 cm</p>

# ENTRY, PRESCRIPTION AND EXIT CRITERIA FOR SPECIALISED FOOD PRODUCTS (CONTINUED)

Target group	Entry criteria	Specialised food product prescribed	Transition/exit criteria
Adolescents 15–17 years	<b><u>SAM</u></b> <b>Bilateral pitting oedema</b> <b>OR</b> confirmed unintentional weight loss of > 10% since the last visit <b>OR MUAC &lt; 18.5 cm</b> <b>OR BMI &lt; 16.0</b>	<b>Inpatient</b> Stabilisation: 50 kcal of F-75/kg of body weight/day Transition: 50 kcal of F-100/kg of body weight/day Rehabilitation: 3 packets of RUTF/day PLUS 300 g of FBF/day  <b>Outpatient</b> 3 packets of RUTF/day PLUS 300 g of FBF/day	<b>MUAC ≥ 18.5 cm</b>
	<b><u>MAM</u></b> Confirmed unintentional weight loss > 5% since last visit <b>MUAC ≥ 18.5 to &lt; 22.0 cm</b> <b>OR BMI ≥ 16.0 and &lt; 18.5</b>	300 g of FBF/day	<b>MUAC ≥ 22.0 cm</b>
Adults (non-pregnant/≤ 6 months post-partum)	<b><u>SAM</u></b> <b>Bilateral pitting oedema</b> <b>OR MUAC &lt; 18.5 cm</b> <b>OR BMI &lt; 16.0</b>	<b>Inpatient</b> Stabilisation: 53 ml of F-75 OR 40 kcal of F-75/kg of body weight/day Transition: 50 ml of F-100 OR 40 kcal of F-75/kg of body weight/day Rehabilitation: 3 packets of RUTF/day PLUS 300 g of fortified-blended food (FBF)/day  <b>Outpatient</b> 3 packets of RUTF/day PLUS 300 g of FBF/day	<b>MUAC ≥ 18.5 cm</b> <b>OR BMI ≥ 16.0 and &lt; 18.5</b> <b>OR sustained weight gain</b>
	<b><u>MAM</u></b> <b>MUAC ≥ 18.5 to &lt; 22.0 cm</b> <b>OR BMI ≥ 16.0 to &lt; 18.5</b>	300 g of FBF/day	<b>MUAC ≥ 22.0 cm</b> <b>OR BMI &gt; 18.5 kg/m<sup>2</sup></b> for two consecutive visits
Pregnant women and women ≤ 6 months post-partum	<b><u>SAM</u></b> <b>Bilateral pitting oedema</b> <b>OR MUAC &lt; 19.0 cm</b>	<b>Inpatient</b> Stabilisation: 53 ml of F-75 OR 50 kcal of F-75/kg body weight/day Transition: 40 kcal of F-100/kg body weight/day Rehabilitation: 3 packets of RUTF/day PLUS 300 g of FBF/day  <b>Outpatient</b> 3 packets of RUTF/day PLUS 300 g of FBF/day	<b>MUAC ≥ 19.0 cm</b>
	<b><u>MAM</u></b> <b>Poor weight gain</b> <b>OR MUAC ≥ 19.0 to &lt; 23.0 cm</b>	300 g of FBF/day	<b>MUAC ≥ 23.0 cm</b> <b>OR &gt; 6 months post-partum</b>

## 19 HOW TO FEED READY-TO-USE THERAPEUTIC FOOD TO A MALNOURISHED CHILD



If the child is breastfed, breastfeed before giving the ready-to-use therapeutic food (RUTF). Continue to breastfeed the child regularly.



Use soap and clean running water to wash the child's hands before feeding the RUTF.



RUTF is **ONLY** for the malnourished child and should not be shared with others in the family.

The malnourished child should complete the whole daily ration of RUTF before being given any other foods (apart from breast milk).



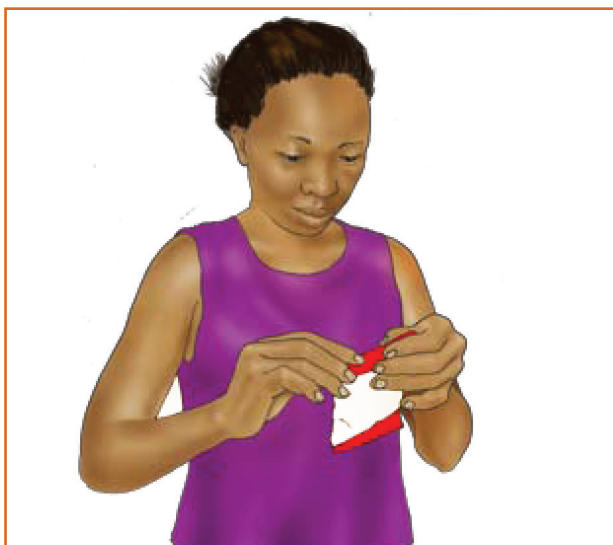
RUTF makes children thirsty, and they will have to drink more than usual when eating RUTF. Offer the child breast milk (or boiled or treated water if not breastfeeding) to drink while feeding the RUTF.

## 20 FORTIFIED-BLENDED FOOD OR READY-TO-USE SUPPLEMENTARY FOOD

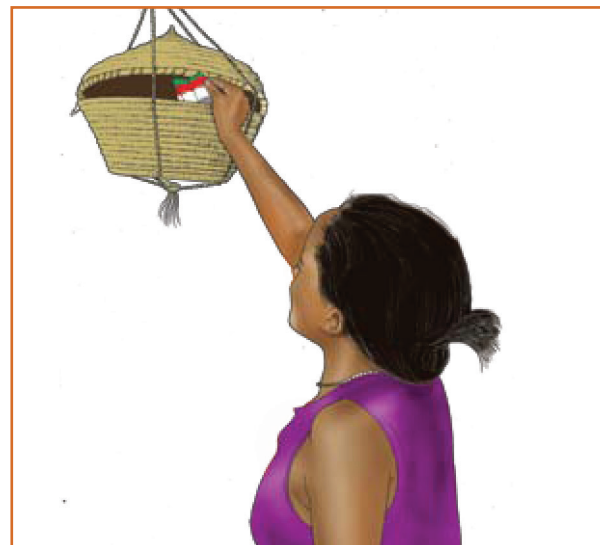
- Fortified-blended food (FBF) and ready-to-use supplementary food (RUSF) are made specially to treat moderate acute malnutrition (MAM) and can only be prescribed by a health care worker.
- Cook FBF using clean, safe (boiled or treated) water after washing hands thoroughly. Boil the FBF for 15 minutes, stirring continuously. Add more water if the porridge is too thick.
- Eat the full daily ration of FBF or RUSF as instructed by the health care worker.
- FBF and RUSF are ONLY for people with MAM. Do not share them with others in the family.
- If you have diarrhoea, vomiting or other symptoms while on FBF or RUSF, see a health care worker.
- Keep the FBF or RUSF in a dry place where other people, rodents, insects and sun cannot reach it, for example, in a covered basket raised above the ground or a closed cupboard.



## 21 HOW TO STORE AND DISPOSE OF SPECIALISED FOOD PRODUCT PACKETS



Roll up the packet after every use. Put the remaining food product into a sealed plastic bag until you need to take the next dose.



Store the packet where people, rodents, insects and sun cannot reach it, for example, in a basket hanging from the roof beam, a covered pot or a closed cupboard.

Do not burn or throw away the empty packets. The plastic will pollute the environment. Take the empty packets back to the health care facility when you pick up your next prescription. The facility will dispose of the packets safely.

## 22 RECIPES FOR NON-COMMERCIAL THERAPEUTIC MILKS

Use commercial F-75 or F-100 whenever it is available. If it is not available, therapeutic milks can be prepared from the ingredients in the recipes below.

### Recipe for non-commercial F-75 and F-100 using full-cream milk powder

Full-cream milk powder	35 g	110 g
Sugar	100 g	50 g
Vegetable oil	20 g or mL	30 g or mL
Combined Mineral and Vitamin Mix (CMV)	½ of a 3.18-g red scoop	½ of a 3.18-g red scoop
Lukewarm, boiled or treated drinking water	Add water to make 1,000 mL	Add water to make 1,000 mL

### Recipe for non-commercial F-75 and F-100 using skim milk powder

Ingredients	F-75	F-100
Skim milk powder	25 g	80 g
Sugar	100 g	50 g
Vegetable oil	30 g or mL	60 g or mL
CMV	½ of a 3.18-g red scoop	½ of a 3.18-g red scoop
Lukewarm, boiled or treated drinking water	Add water to make 1,000 mL	Add water to make 1,000 mL

### How to prepare non-commercial F-75 and F-100

1. Boil the water and allow it to cool.
2. In a clean pan, mix the milk, flour (if using), sugar, oil and CMV (or in the case of home preparation, 20 mL of the mineral mix and 140 mg of the vitamin mix) until it forms a smooth paste.
3. Transfer the mixture to a clean, graduated jar. Gradually add the lukewarm, boiled or treated drinking water until it reaches the 1-litre mark.
4. Slowly mix the therapeutic milk.
5. If possible, store the therapeutic milk in a refrigerator.

## RECIPES FOR NON-COMMERCIAL THERAPEUTIC MILKS (*CONTINUED*)

### Recipe for non-commercial F-75 and F-100 using fresh milk

Ingredients	F-75	F-100
Fresh milk	300 mL	880 mL
Sugar	100 g	75 g
Vegetable oil	20 g or mL	20 g or mL
CMV	½ of a 3.18-g red scoop	½ of a 3.18-g red scoop
Lukewarm, boiled or treated drinking water	Add water to make 1,000 mL	Add water to make 1,000 mL

### Recipe for non-commercial F-75 using cereal flour (for clients with osmotic diarrhoea)

Ingredients	Isotonic F-75 using whole milk powder	Isotonic F-75 using skim milk powder	Isotonic F-75 using fresh milk
Milk	35 g	25 g	300 mL
Cereal flour	35 g	35 g	35 g
Sugar	70 g	70 g	70 g
Vegetable oil	20 g or mL	30 g or mL	20 g or mL
CMV	½ of a 3.18-g red scoop	½ of a 3.18-g red scoop	½ of a 3.18-g red scoop
Lukewarm, boiled or treated drinking water	Add water to make 1,000 mL	Add water to make 1,000 mL	Add water to make 1,000 mL



## RECIPES FOR NON-COMMERCIAL THERAPEUTIC MILKS (CONTINUED)

If premixed CMV is not available, a mineral and vitamin mixture can be prepared following the information in the tables below.

### Mineral Mix

Mineral	Quantity
Potassium chloride	89.5 g
Tripotassium citrate	32.4 g
Magnesium chloride (MgCl <sub>2</sub> · 6H <sub>2</sub> O)	30.5 g
Zinc acetate	3.3 g
Copper sulphate	0.56 g
Sodium selenate <sup>1</sup>	10 mg
Potassium iodide <sup>1</sup>	5 mg
Lukewarm, boiled or treated drinking water	Add water to make 1,000 mL

<sup>1</sup> If you cannot weigh these quantities, omit from the recipe.  
Note: Store the mineral mix at room temperature.

### Vitamin Mix

Vitamin	Quantity per litre of liquid diet
<b>Water soluble</b>	
Thiamine (vitamin B1)	0.7 mg
Riboflavin (vitamin B2)	2 mg
Nicotinic acid	10 mg
Pyridoxine (vitamin B6)	0.7 mg
Cyanocobalamin (vitamin B12)	1 µg
Folic acid	0.35 mg
Ascorbic acid (vitamin C)	100 mg
Pantothenic acid (vitamin B5)	3 mg
Biotin	0.1 mg
<b>Oil soluble</b>	
Retinol (vitamin A)	1.5 mg
Calciferol (vitamin D)	30 µg
A-Tocopherol (vitamin E)	22 mg
Vitamin K	40 µg

## 23 NACS PROTOCOL

1. Provide health and nutrition education in the waiting area.
2. Assess and classify the client's nutritional status.
  - Check for bilateral pitting oedema.
  - Take anthropometric measurements.
  - Find out whether the client has any medical complications or is taking any medications that could affect nutritional status.
  - Ask the client's HIV status. If HIV status is unknown, refer for testing.
  - Check lab results for any nutrition-related problems.
  - Assess the quantity and quality of the client's food intake, food allergies and intolerances, and reasons for inadequate food intake during illness.
  - If the client has severe acute malnutrition (SAM) with appetite and no medical complications, treat as outpatient.
  - If the client has SAM with medical complications, do an appetite test. Refer clients who do not pass the appetite test for further medical assessment and inpatient treatment.
3. Use the appropriate Nutrition Care Plan based on the client's nutritional status.
4. Make an appointment for the client to return in 2 weeks. Follow the same procedures on each visit.
5. Fill out the **Nutrition Assessment and Management Form** to keep in the client's file.
6. Fill out the **Daily Register of NACS Clients** with information from all the **Nutrition Assessment and Management Forms** filled out during the day.
7. Fill out the **Specialised Food Product Prescription Form**.
8. Fill out a **Ration Card** for the client to keep.
9. Fill out the **Daily Specialised Food Product Dispensing Register** from all the **Specialised Food Product Prescription Forms** filled out during the day.
10. On follow-up visits, record the client's status in the **Nutrition Assessment and Management Form** as:
  - **Graduated** (reached the target weight or exit criteria): Provide 1 week of RUTF and counsel on a balanced and nutritious diet.
  - **Deceased**: Complete and close the client's file.
  - **Lost to follow-up** (did not return for two consecutive visits): Organise a home visit and re-enrol the client if she or he meets entry criteria. Fill out a new **Nutrition Assessment and Management Form** with the same registration number.
  - **Treatment failure** (did not reach exit criteria after 2 months of treatment)
  - **Transfer** (condition deteriorated and needs medical attention)
11. Fill out the **Monthly Summary Form for NACS Services** by compiling information from the **Daily Registers of NACS Clients** and **Daily Specialized Food Product Dispensing Registers**.



