



# Bilateral Pitting Oedema

[Under 5]

\* *Bilateral pitting oedema always starts in both feet. Oedema in only one foot is not of nutritional origin.*

**1** Hold the child's feet and press your thumbs on top of both feet. Count to 3 and then lift your thumbs. If no pit shows or if a pit only shows in one foot, the child does not have bilateral pitting oedema. If a pit shows in both feet, go to Step 2.

**2** Continue the same test on the lower legs, hands, and lower arms. If no pitting appears in these areas, then the child is said to have mild (grade +) bilateral pitting oedema. (Mild bilateral pitting oedema only shows in the feet.) If pitting appears in these areas, go to Step 3.

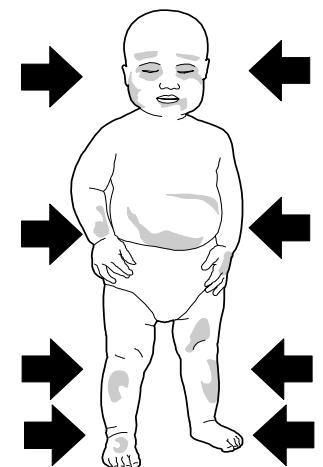
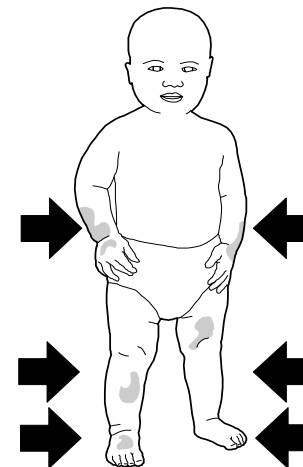
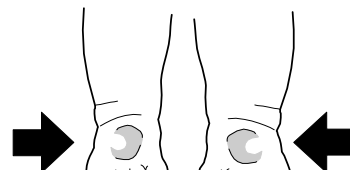
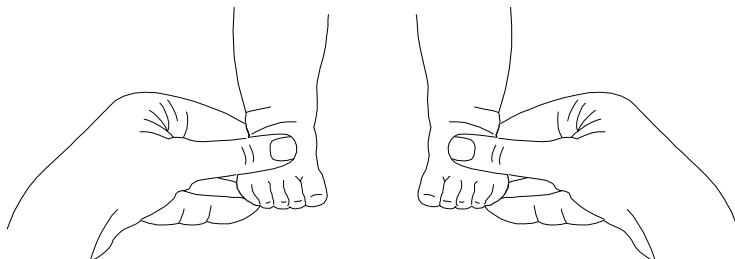
**3** Look for swelling in the face, especially around the eyes. If no swelling appears in the face, then the child is said to have moderate (grade ++) bilateral pitting oedema. If swelling appears in the face, the child is said to have severe (grade +++) bilateral pitting oedema.

**4** If child has oedema, have a second person repeat the test to confirm results.

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# MUAC (without aid)

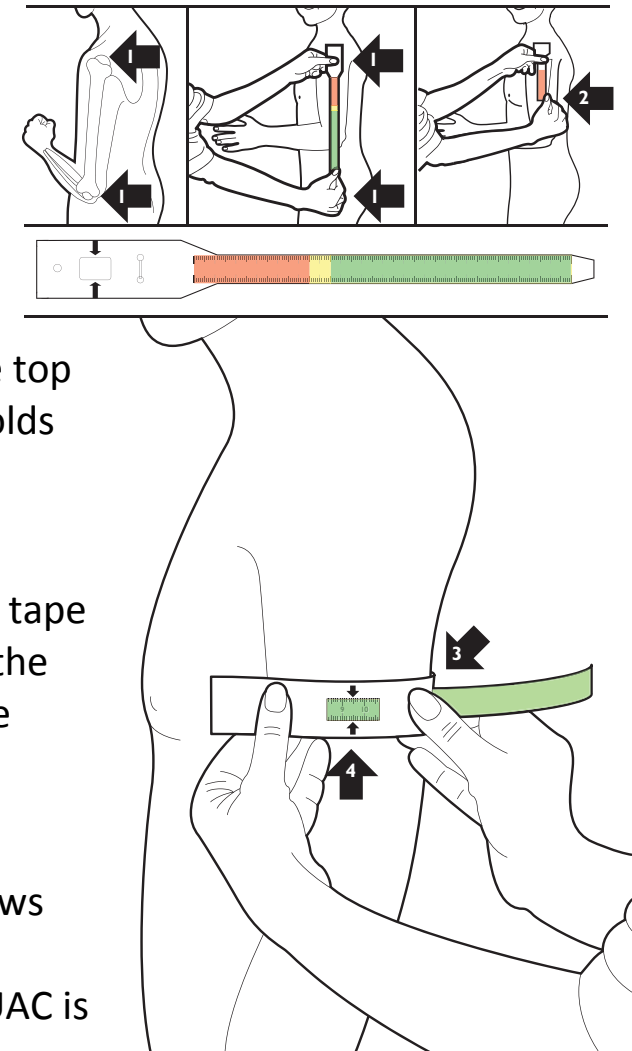
[6–59 months]

**1** MUAC is always taken on the left arm. Have the child bend his/her left arm at a 90° angle. Find the top of the shoulder and the tip of the elbow. Put the top edge of the MUAC tape on the top of the shoulder and place the right thumb on the tape where it meets the tip of the elbow (endpoint).

Find the middle of the upper arm by carefully folding the endpoint to the top edge of the tape and place the left thumb on the point where the tape folds (midpoint).

With the child's arm relaxed and falling alongside his/her body, wrap the tape around the arm at the midpoint. There shouldn't be any space between the skin and tape, but don't wrap the tape too tight. Slide the end of the tape through the small opening.

Read the measurement from the middle window, exactly where the arrows point inward. Depending on the tape used, the measurement will be in millimetres (mm), centimetres (cm), or in colour (red, yellow, green). MUAC is recorded with a precision of 1 mm (0.1 cm).

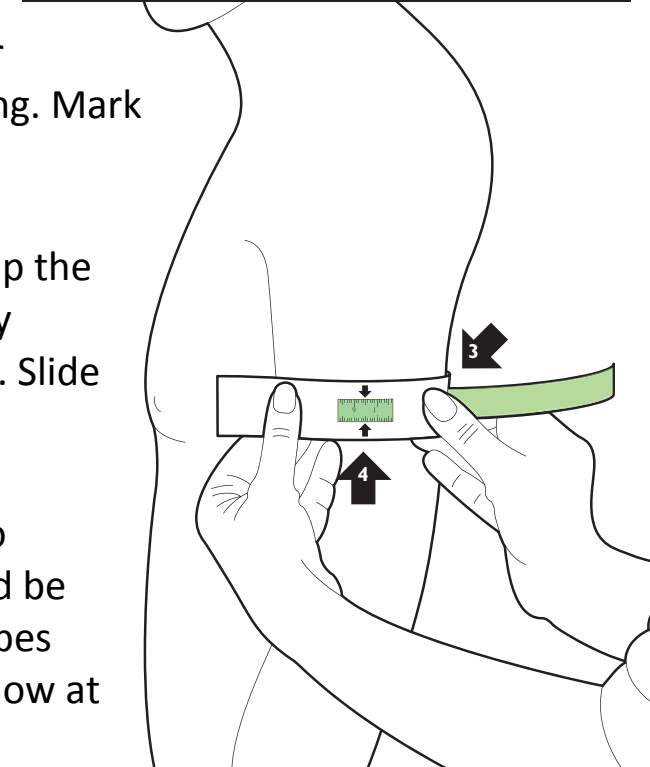
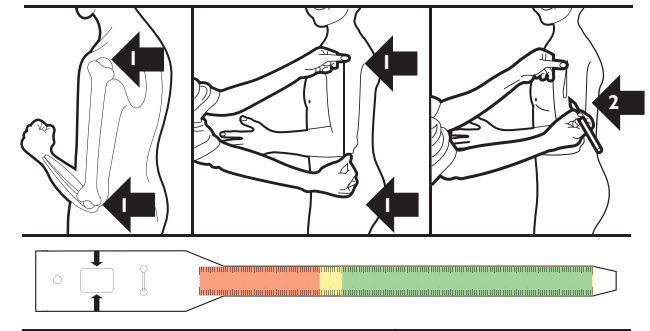




# MUAC (with pen & string)

[6–59 months]

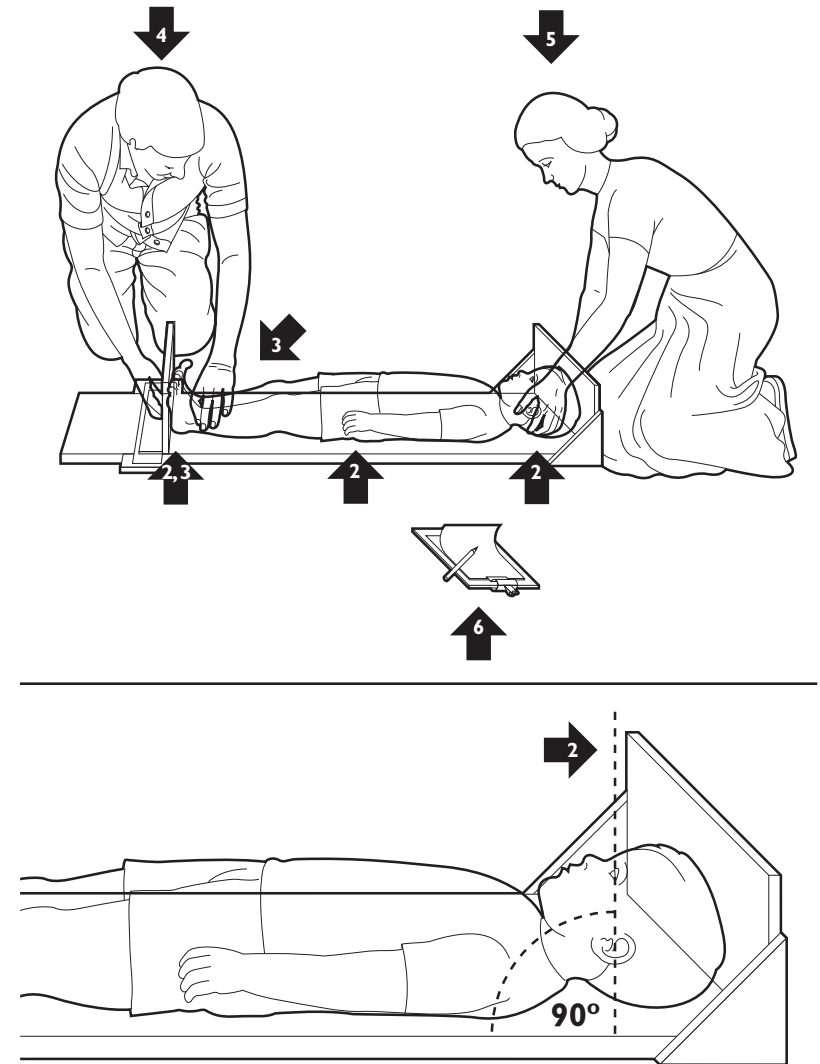
- 1** MUAC is always taken on the left arm. Have the child bend his/her arm at a 90-degree angle. Find the top of the shoulder and the tip of the elbow. Hold one end of a piece of string at the top of the shoulder and hold the string where it meets the tip of the elbow (endpoint).
- 2** Fold the endpoint up to the end of the string on top of the shoulder and place the left thumb on the point of the folded ends of the string. Mark the midpoint with a pen.
- 3** With the child's arm relaxed and falling alongside his/her body, wrap the MUAC tape around the arm at the midpoint. There shouldn't be any space between the skin and tape, but don't wrap the tape too tight. Slide the end of the tape through the small opening.
- 4** Read the measurement from the middle window exactly where two arrows point inward. For numbered tapes, the measurement should be recorded with a precision of 1 millimetre (mm). For three-colour tapes (red, yellow, green), record the colour that shows through the window at the point the two arrows indicate.





# Height Using Length Board [Under 2 years **OR**, if age is not known, height less than 87 cm, **OR** 2 years or older or at least 87 cm tall but unable to stand]

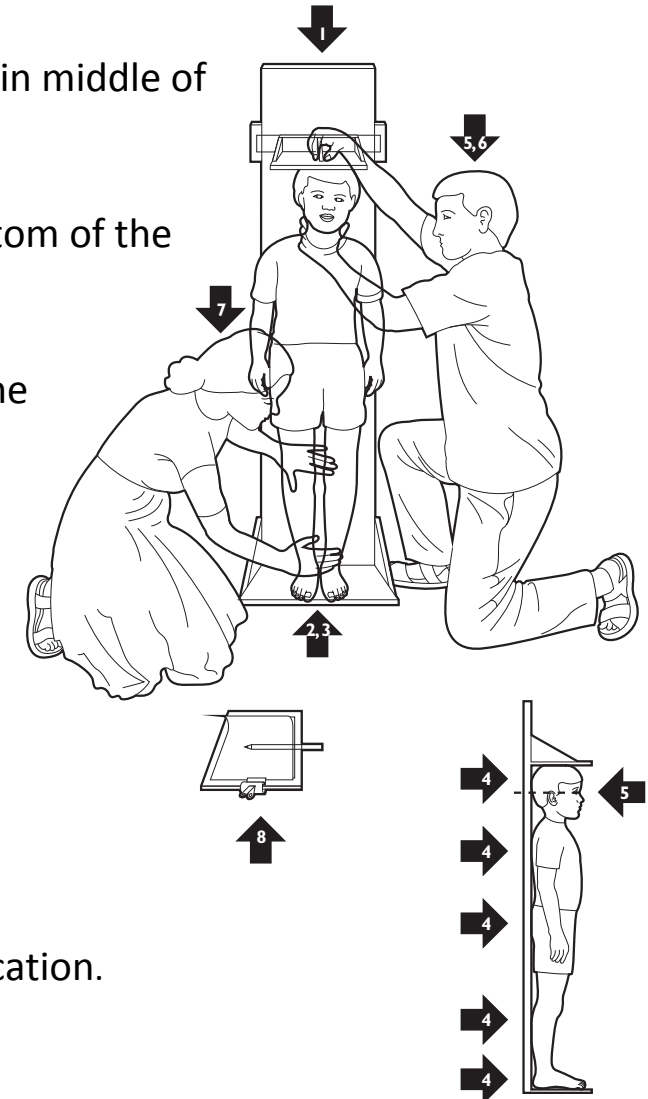
- 1** Place height board on the ground and remove child's shoes.
- 2** Place child on his/her back in middle of board, head facing straight up, arms at child's sides and feet at 90° angles to board.
- 3** While holding child's ankles or knees, move sliding board up against bottom of child's feet.
- 4** Take measurement to nearest 0.1 cm and read out loud.
- 5** The assistant, while holding the child's head in place, repeats the measurement for verification.
- 6** Measurer records height to nearest 0.1 cm. If child is 2 years or older or is 87 cm or greater while standing up, subtract 0.7 cm from measurement.





# Height Using Height Board [2 years or older **OR** height 87 cm or greater **AND** able to stand]

- 1 Remove child's shoes and place him/her on height board, standing upright in middle of board with arms at his/her sides.
- 2 Child's feet should be close together with heels and soles touching the bottom of the board (that is, not standing tiptoe).
- 3 The back of the child's ankles and knees should be firmly pressed toward the board.
- 4 The child should stand straight, with heels, back of legs, buttocks, shoulders and head touching the back of the board.
- 5 Measurer holds child's head straight. The child's line of vision should be parallel to the floor.
- 6 Measurer reads measurement out loud to nearest 0.1 cm.
- 7 Assistant, holding child's legs and feet, repeats the measurement for verification.
- 8 Measurer records height to nearest 0.1 cm.





# Tips for Weighing a Child or Infant

- ✓ Never weigh a child without explaining the procedure to the caregiver.
- ✓ Children should be weighed and completely naked only in the presence of the caregiver. Have the caregiver remove the child's clothes.
- ✓ Put a soft cloth or the child's wrapping on the scale to protect the child from the hard and potentially cold surface.
- ✓ Read the child's weight when the child is not moving. The child should remain still for the weighing.
- ✓ Scales must be cleaned and re-zeroed after each weighing.
- ✓ Infants under 6 months are weighed using an infant scale with of a 10-gram precision



# Weight Using a Solar Electronic Scale

[6–59 months]

\* 'Tared weighing' means that the scale can be reset to zero ('tared') with the person just weighed still on it. Stress that the caregiver must stay on the scale until his/her child has been weighed in her arms.

1 Be sure that the scale is placed on a flat, hard, even surface. Since the scale is solar powered, there must be enough light to operate the scale.

2 To turn on the scale, cover the solar panel for a second. When the number 0.0 appears, the scale is ready.

3 Check to see that the caregiver has removed his/her shoes. You or someone else should hold the naked child wrapped in a blanket.

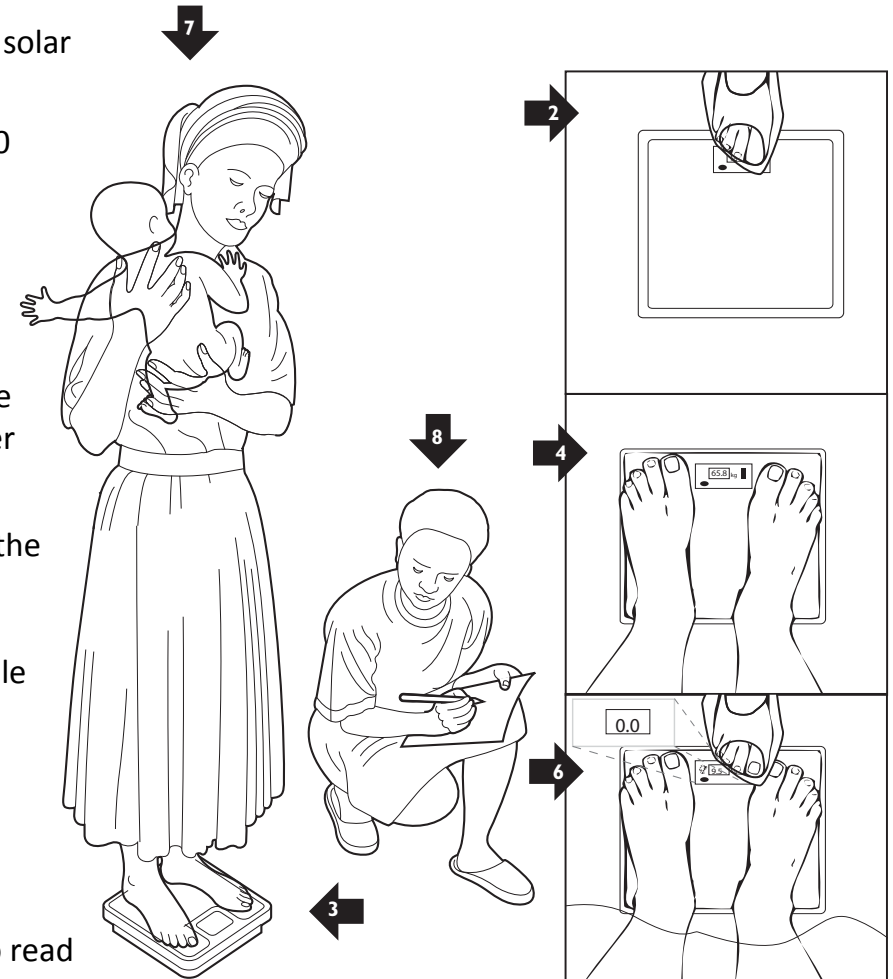
4 Ask the caregiver to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and remain still. The caregiver's clothing must not cover the display or solar panel.

5 Remind him/her to stay on the scale even after his/her weight appears, until the child has been weighed in his/her arms.

6 With the caregiver still on the scale and his/her weight displayed, tare the scale by covering the solar panel for a second. The scale is tared when it displays a figure of an adult and a child and the number 0.0.

7 Gently hand the naked child to the caregiver and ask him/her to remain still.

8 The child's weight will appear on the display. Record the weight. Be careful to read the numbers in the correct order (as though you were viewing while standing on the scale rather than upside-down).



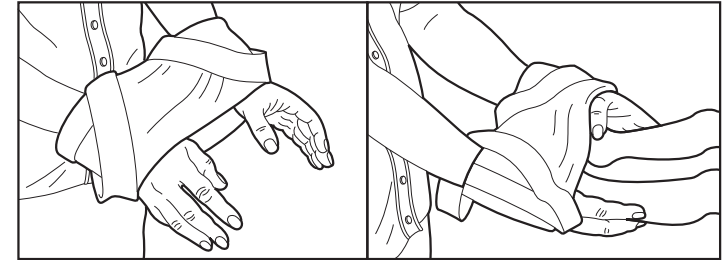
Adapted from "How to use the UNISCALE" UNICEF, 2000 and "Weighing a Child Using a Taring Scale" WHO, 2006.



# Weight Using Hanging Scale (Pants)

[6–59 months]

- \* The scale should be checked daily against a known weight. To do this, set the scale to zero and weigh objects of known weight (for example, 5.0 kg, 10.0 kg, 15.0 kg). If the measurement does not match that of the known weight to within 10 grams, the springs must be changed or the scale should be replaced.



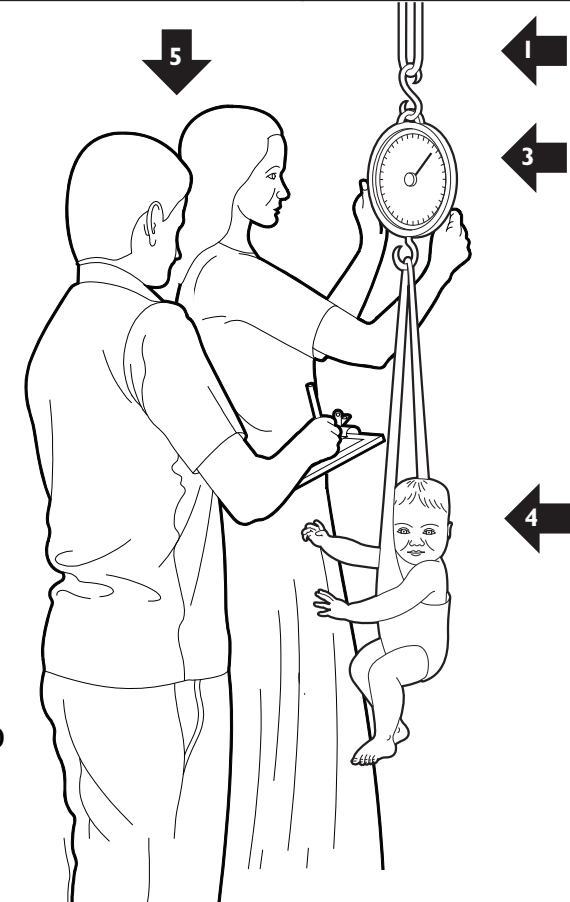
- 1 The scale can be hooked to a rope on the ceiling or stand in a clinic, at eye level of the measurer.

- 2 Before weighing the child, have the caregiver take all the child's clothes off.

- 3 Make sure the scale arrow is at 0 ('zero the scale') with the weighing pants hooked on the scale.

- 4 Place child in weighing pants and let child hang freely, touching nothing. Make sure the child is safely in the weighing pants, with one arm in front and one arm behind the straps to help maintain balance.

- 5 When arrow is steady, measurer reads child's weight in kg at **eye level** to the nearest 100 g (for example, 6.4 kg). The assistant repeats it for verification and records it.





# Weight Using Hanging Scale (Bucket)

[6–24 months]

\* The scale should be checked daily against a known weight. To do this, set the scale to zero and weigh objects of known weight (for example, 5.0 kg, 10.0 kg, 15.0 kg). If the measure does not match the weight to within 10 grams, the springs must be changed or the scale should be replaced.

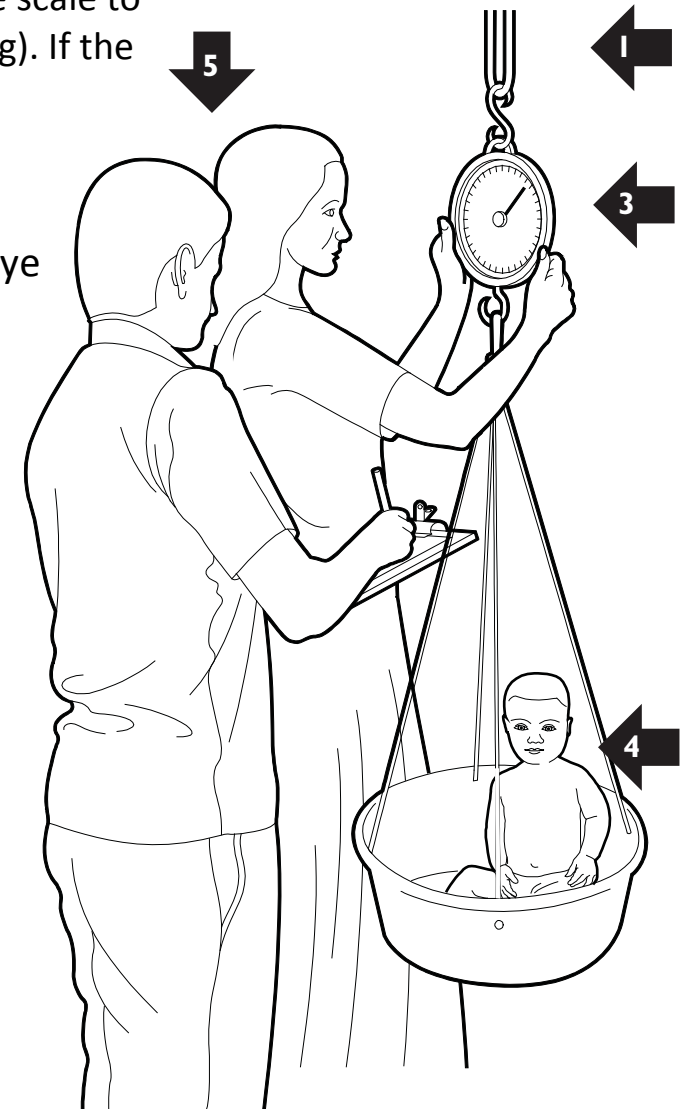
1 The scale can be hooked to a rope on the ceiling or stand in a clinic, at eye level of the measurer. Put a soft cloth or the child's wrapping in the bucket.

2 Before weighing the child, have the caregiver take all the child's clothes off.

3 Make sure the scale arrow is at 0 ('zero the scale') with the bucket hooked on the scale.

4 Place child in weighing bucket.

5 When arrow is steady, measurer reads child's weight in kg at **eye level**. The assistant repeats it for verification and records it to nearest 100 g (for example, 5.2 kg).





# Weight Using Hanging Scale (Cloth)

[6–59 months]

\* The scale should be checked daily against a known weight. To do this, set the scale to zero and weigh objects of known weight (e.g., 5.0 kg, 10.0 kg, 15.0 kg). If the measure does not match the weight to within 10 grams the springs must be changed or the scale should be replaced.

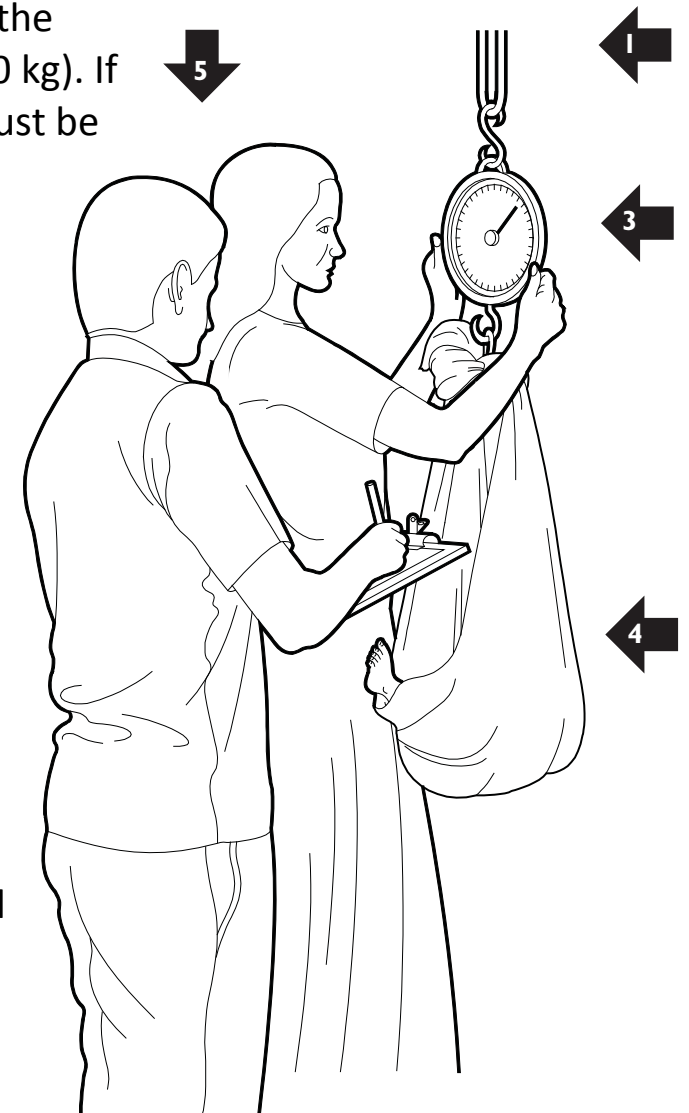
1 The scale can be hooked to a rope on the ceiling or stand in a clinic, at eye level of the measurer.

2 Before weighing the child, have the caregiver take all his/her clothes off.

3 Make sure the weighing scale arrow is at 0 (zero the scale) each time with the hammock or cloth that will be used hooked on the scale.

4 Place child in hammock or cloth, hook it on the scale, and let child hang freely, touching nothing. Make sure the child is safely in the hammock or cloth.

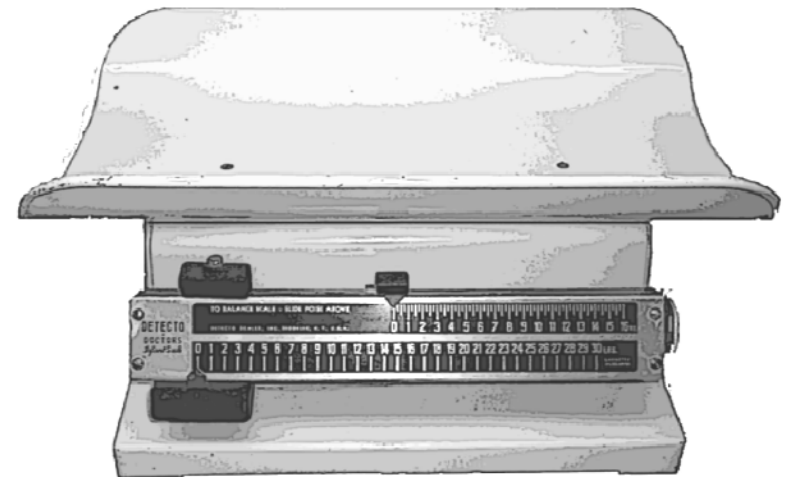
5 When arrow is steady, measurer reads child's weight in kg at eye level and to the nearest 100 g (for example, 6.4 kg). The assistant repeats it for verification and records it.





# Weight Using an Infant Beam Scale [Infants under 6 Months]

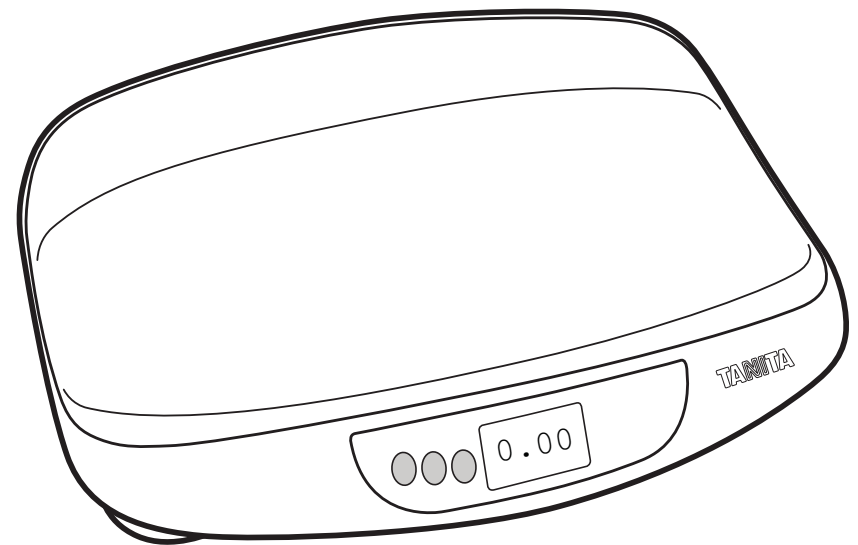
- 1 Unlock the beam, put a soft cloth or the infant's wrapping on the scale, and zero the scale (i.e., make sure that the end of the beam is not touching either the top or the bottom of the hole it fits through).
- 2 Have the caregiver remove the infant's clothes and put the infant on the scale. Advise the caregiver to remain close but not to touch the infant or the scale.
- 3 Move the weights along the beam until the end of the beam is not touching either the top or the bottom of the hole it fits through.
- 4 Read and write down the infant's weight with a 10-gram precision (e.g., 2 kg 220 g).
- 5 Lock the beam and remove the infant.
- 6 Clean and re-zero the scale.





# Weight Using an Infant Bench Scale [Infants under 6 Months]

- 1 Have the caregiver remove the infant's clothes and hold the child.
- 2 Put a soft cloth or the infant's wrapping on the scale and turn it on. Wait until the scale shows zeros.
- 3 Within 60 seconds of the scale showing zeros, have the caregiver put the infant on the scale. Advise the caregiver to remain close but not to touch the infant or the scale. The scale will display the infant's weight.
- 4 Read and write down the infant's weight with a 10-gram precision (e.g., 3 kg 470 g).
- 5 Turn off the scale and remove the infant.
- 6 Clean the scale.





# Admission and Discharge Criteria for the Management of Severe Acute Malnutrition in Children under 5

## Inpatient Care

## Outpatient Care

### ADMISSION CRITERIA

#### CHILDREN 6–59 MONTHS

- Bilateral pitting oedema +++  
**OR**  
 Any grade of bilateral pitting oedema with severe wasting (MUAC < 115 mm or WFH < -3 z-score)

**OR**

- SAM with any of the following medical complications:
- Anorexia, poor appetite
  - Intractable vomiting
  - Convulsions
  - Lethargy, not alert
  - Unconsciousness
  - Hypoglycaemia
  - High fever
  - Hypothermia
  - Severe dehydration
  - Persistent diarrhoea
  - Lower respiratory tract infection
  - Severe anaemia
  - Eye signs of vitamin A deficiency
  - Skin lesion

**OR**

- Referred from Outpatient Care according to action protocol

#### INFANTS < 6 MONTHS

(Includes infants with SAM ≥ 6 months and < 4 kg)

- Bilateral pitting oedema

**OR**

- Visible wasting

#### CHILDREN 6–59 MONTHS

- Bilateral pitting oedema + or ++  
**OR**  
 Severe wasting (MUAC < 115 mm or WFH < -3 z-score)

**AND**

- Appetite test passed
- No medical complication
- Child clinically well and alert

### REFERRAL/DISCHARGE CRITERIA

#### CHILDREN 6–59 MONTHS

- Referred to Outpatient Care:
- Appetite returned (passed appetite test)
  - Medical complication resolving
  - Severe bilateral pitting oedema decreasing
  - Child clinically well and alert
- (additional criterion for referral for cases of oedema with wasting: bilateral pitting oedema resolved)
- Discharged cured (special cases):
- 15 percent weight gain maintained for 2 consecutive weeks (of admission weight or weight free of oedema) (for cases of wasting and of oedema with wasting)
  - Oedema-free for 2 consecutive weeks
  - Child clinically well and alert

#### INFANTS < 6 MONTHS

- Discharged cured (for breastfed infants):
- Successful re-lactation and appropriate weight gain maintained (minimum 20 g per day on breastfeeding alone for 5 days) and infant clinically well and alert
  - Oedema-free for 2 consecutive weeks

(See other guidance for non-breastfed infants who are on replacement feeding.)

#### CHILDREN 6–59 MONTHS

- Discharged cured:
- 15 percent weight gain maintained for 2 weeks (of admission weight or weight free of oedema)
  - Oedema-free for 2 consecutive weeks
  - Child clinically well and alert

Children are referred to receive supplementary feeding if available.





# Weight-for-Length Look-Up Table Children 6–23 Months

[WHO 2006 Child Growth Standards]

If a child is under 2 years old, or if a child is less than 87 cm tall and his/her age is not known, measure length while the child is lying down (recumbent). Use the weight-for-length look-up table.

Boys' weight (kg)				Length (cm)	Girls' weight (kg)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
1.9	2.0	2.2	2.4	45	2.5	2.3	2.1	1.9
2.0	2.2	2.4	2.6	46	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.8	47	2.8	2.6	2.4	2.2
2.3	2.5	2.7	2.9	48	3.0	2.7	2.5	2.3
2.4	2.6	2.9	3.1	49	3.2	2.9	2.6	2.4
2.6	2.8	3.0	3.3	50	3.4	3.1	2.8	2.6
2.7	3.0	3.2	3.5	51	3.6	3.3	3.0	2.8
2.9	3.2	3.5	3.8	52	3.8	3.5	3.2	2.9
3.1	3.4	3.7	4.0	53	4.0	3.7	3.4	3.1
3.3	3.6	3.9	4.3	54	4.3	3.9	3.6	3.3
3.6	3.8	4.2	4.5	55	4.5	4.2	3.8	3.5
3.8	4.1	4.4	4.8	56	4.8	4.4	4.0	3.7
4.0	4.3	4.7	5.1	57	5.1	4.6	4.3	3.9
4.3	4.6	5.0	5.4	58	5.4	4.9	4.5	4.1
4.5	4.8	5.3	5.7	59	5.6	5.1	4.7	4.3
4.7	5.1	5.5	6.0	60	5.9	5.4	4.9	4.5
4.9	5.3	5.8	6.3	61	6.1	5.6	5.1	4.7
5.1	5.6	6.0	6.5	62	6.4	5.8	5.3	4.9
5.3	5.8	6.2	6.8	63	6.6	6.0	5.5	5.1
5.5	6.0	6.5	7.0	64	6.9	6.3	5.7	5.3
5.7	6.2	6.7	7.3	65	7.1	6.5	5.9	5.5
5.9	6.4	6.9	7.5	66	7.3	6.7	6.1	5.6
6.1	6.6	7.1	7.7	67	7.5	6.9	6.3	5.8
6.3	6.8	7.3	8.0	68	7.7	7.1	6.5	6.0
6.5	7.0	7.6	8.2	69	8.0	7.3	6.7	6.1
6.6	7.2	7.8	8.4	70	8.2	7.5	6.9	6.3
6.8	7.4	8.0	8.6	71	8.4	7.7	7.0	6.5
7.0	7.6	8.2	8.9	72	8.6	7.8	7.2	6.6
7.2	7.7	8.4	9.1	73	8.8	8.0	7.4	6.8
7.3	7.9	8.6	9.3	74	9.0	8.2	7.5	6.9
7.5	8.1	8.8	9.5	75	9.1	8.4	7.7	7.1
7.6	8.3	8.9	9.7	76	9.3	8.5	7.8	7.2
7.8	8.4	9.1	9.9	77	9.5	8.7	8.0	7.4
7.9	8.6	9.3	10.1	78	9.7	8.9	8.2	7.5
8.1	8.7	9.5	10.3	79	9.9	9.1	8.3	7.7
8.2	8.9	9.6	10.4	80	10.1	9.2	8.5	7.8
8.4	9.1	9.8	10.6	81	10.3	9.4	8.7	8.0
8.5	9.2	10.0	10.8	82	10.5	9.6	8.8	8.1
8.7	9.4	10.2	11.0	83	10.7	9.8	9.0	8.3
8.9	9.6	10.4	11.3	84	11.0	10.1	9.2	8.5
9.1	9.8	10.6	11.5	85	11.2	10.3	9.4	8.7
9.3	10.0	10.8	11.7	86	11.5	10.5	9.7	8.9
9.5	10.2	11.1	12.0	87	11.7	10.7	9.9	9.1
9.7	10.5	11.3	12.2	88	12.0	11.0	10.1	9.3
9.9	10.7	11.5	12.5	89	12.2	11.2	10.3	9.5
10.1	10.9	11.8	12.7	90	12.5	11.4	10.5	9.7
10.3	11.1	12.0	13.0	91	12.7	11.7	10.7	9.9
10.5	11.3	12.2	13.2	92	13.0	11.9	10.9	10.1
10.7	11.5	12.4	13.4	93	13.2	12.1	11.1	10.2
10.8	11.7	12.6	13.7	94	13.5	12.3	11.3	10.4
11.0	11.9	12.8	13.9	95	13.7	12.6	11.5	10.6
11.2	12.1	13.1	14.1	96	14.0	12.8	11.7	10.8
11.4	12.3	13.3	14.4	97	14.2	13.0	12.0	11.0
11.6	12.5	13.5	14.6	98	14.5	13.3	12.2	11.2
11.8	12.7	13.7	14.9	99	14.8	13.5	12.4	11.4
12.0	12.9	14.0	15.2	100	15.0	13.7	12.6	11.6



# Weight-for-Height Look-Up Table Children 24–59 Months

[WHO 2006 Child Growth Standards]

If a child is 2 years old or older, or if a child is at least 87 cm tall and his/her age is not known, measure standing height. If a child 2 years old or older or at least 87 cm tall is unable to stand, measure length while the child is lying down (recumbent) and subtract 0.7 cm from the length to arrive at a comparable height. Use the weight-for-height look-up table.

Boys' weight (kg)				Height (cm)	Girls' weight (kg)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
5.9	6.3	6.9	7.4	65	7.2	6.6	6.1	5.6
6.1	6.5	7.1	7.7	66	7.5	6.8	6.3	5.8
6.2	6.7	7.3	7.9	67	7.7	7.0	6.4	5.9
6.4	6.9	7.5	8.1	68	7.9	7.2	6.6	6.1
6.6	7.1	7.7	8.4	69	8.1	7.4	6.8	6.3
6.8	7.3	7.9	8.6	70	8.3	7.6	7.0	6.4
6.9	7.5	8.1	8.8	71	8.5	7.8	7.1	6.6
7.1	7.7	8.3	9.0	72	8.7	8.0	7.3	6.7
7.3	7.9	8.5	9.2	73	8.9	8.1	7.5	6.9
7.4	8.0	8.7	9.4	74	9.1	8.3	7.6	7.0
7.6	8.2	8.9	9.6	75	9.3	8.5	7.8	7.2
7.7	8.4	9.1	9.8	76	9.5	8.7	8.0	7.3
7.9	8.5	9.2	10.0	77	9.6	8.8	8.1	7.5
8.0	8.7	9.4	10.2	78	9.8	9.0	8.3	7.6
8.2	8.8	9.6	10.4	79	10.0	9.2	8.4	7.8
8.3	9.0	9.7	10.6	80	10.2	9.4	8.6	7.9
8.5	9.2	9.9	10.8	81	10.4	9.6	8.8	8.1
8.7	9.3	10.1	11.0	82	10.7	9.8	9.0	8.3
8.8	9.5	10.3	11.2	83	10.9	10.0	9.2	8.5
9.0	9.7	10.5	11.4	84	11.1	10.2	9.4	8.6
9.2	10.0	10.8	11.7	85	11.4	10.4	9.6	8.8
9.4	10.2	11.0	11.9	86	11.6	10.7	9.8	9.0
9.6	10.4	11.2	12.2	87	11.9	10.9	10.0	9.2
9.8	10.6	11.5	12.4	88	12.1	11.1	10.2	9.4
10.0	10.8	11.7	12.6	89	12.4	11.4	10.4	9.6
10.2	11.0	11.9	12.9	90	12.6	11.6	10.6	9.8
10.4	11.2	12.1	13.1	91	12.9	11.8	10.9	10.0
10.6	11.4	12.3	13.4	92	13.1	12.0	11.1	10.2
10.8	11.6	12.6	13.6	93	13.4	12.3	11.3	10.4
11.0	11.8	12.8	13.8	94	13.6	12.5	11.5	10.6
11.1	12.0	13.0	14.1	95	13.9	12.7	11.7	10.8
11.3	12.2	13.2	14.3	96	14.1	12.9	11.9	10.9
11.5	12.4	13.4	14.6	97	14.4	13.2	12.1	11.1
11.7	12.6	13.7	14.8	98	14.7	13.4	12.3	11.3
11.9	12.9	13.9	15.1	99	14.9	13.7	12.5	11.5
12.1	13.1	14.2	15.4	100	15.2	13.9	12.8	11.7
12.3	13.3	14.4	15.6	101	15.5	14.2	13.0	12.0
12.5	13.6	14.7	15.9	102	15.8	14.5	13.3	12.2
12.8	13.8	14.9	16.2	103	16.1	14.7	13.5	12.4
13.0	14.0	15.2	16.5	104	16.4	15.0	13.8	12.6
13.2	14.3	15.5	16.8	105	16.8	15.3	14.0	12.9
13.4	14.5	15.8	17.2	106	17.1	15.6	14.3	13.1
13.7	14.8	16.1	17.5	107	17.5	15.9	14.6	13.4
13.9	15.1	16.4	17.8	108	17.8	16.3	14.9	13.7
14.1	15.3	16.7	18.2	109	18.2	16.6	15.2	13.9
14.4	15.6	17.0	18.5	110	18.6	17.0	15.5	14.2
14.6	15.9	17.3	18.9	111	19.0	17.3	15.8	14.5
14.9	16.2	17.6	19.2	112	19.4	17.7	16.2	14.8
15.2	16.5	18.0	19.6	113	19.8	18.0	16.5	15.1
15.4	16.8	18.3	20.0	114	20.2	18.4	16.8	15.4
15.7	17.1	18.6	20.4	115	20.7	18.8	17.2	15.7
16.0	17.4	19.0	20.8	116	21.1	19.2	17.5	16.0
16.2	17.7	19.3	21.2	117	21.5	19.6	17.8	16.3
16.5	18.0	19.7	21.6	118	22.0	19.9	18.2	16.6
16.8	18.3	20.0	22.0	119	22.4	20.3	18.5	16.9
17.1	18.6	20.4	22.4	120	22.8	20.7	18.9	17.3



## 10 Steps for the Management of SAM in Children 6–59 Months in Inpatient Care

STEP	PREVENTION	WARNING SIGNS	IMMEDIATE ACTION
<p><b>1. Prevent or Treat Hypoglycaemia</b> (Low blood sugar) Hypoglycaemia is a blood glucose &lt; 3 mmol/L or &lt; 54 mg/dl).</p>	<p>For all children:-</p> <ol style="list-style-type: none"> <li>1. Feed straightaway and then every 2 hours, day and night.</li> <li>2. Encourage mothers to watch for any deterioration of their children’s general condition and to help feed and keep their children warm.</li> </ol>	<ol style="list-style-type: none"> <li>1. Low temperature (hypothermia) noted on routine check.</li> <li>2. Lethargy, limpness and loss of consciousness. Child can become drowsy.</li> <li>3. Retraction of eyelids. Child sleeping with half-open eyes.</li> </ol>	<p><b>If hypoglycaemia is suspected, give treatment immediately without blood glucose test confirmation.</b> But if you have the dextrostix test readily available, conduct the test to confirm the hypoglycaemia before treatment.</p> <p><b>If conscious:</b></p> <ol style="list-style-type: none"> <li>1. Give a bolus of 10% glucose (50 ml) or sugar solution (1 rounded teaspoon of sugar in 3 tablespoons of water). Bolus of 10% glucose is best, but give sugar solution or F-75 rather than wait for glucose.</li> <li>2. Start feeding straightaway: Feed 2-hourly (12 feeds in 24 hours). Use the F-75 Look-Up Table for amount to give and feed every 2 hours day and night.</li> </ol> <p><b>If unconscious:</b></p> <ol style="list-style-type: none"> <li>1. Give glucose IV (sterile 10% glucose 5 ml/kg), followed by 50 ml 10% glucose by NGT.</li> </ol>
<p><b>2. Prevent or Treat Hypothermia</b> (Low temperature) Hypothermia is an axillary temperature &lt; 35° C or rectal temperature &lt; 35.5° C.</p>	<p>For all children:-</p> <ol style="list-style-type: none"> <li>1. Feed straightaway and then every 2 hours, day and night.</li> <li>2. Keep warm. Use the kangaroo technique; cover with a blanket. Let mother sleep with child to keep child warm.</li> <li>3. Keep room warm; no draughts.</li> <li>4. Keep bedding/clothes dry. Dry child carefully after bathing. Do not bathe child if very ill.</li> <li>5. Avoid exposing child during examinations.</li> <li>6. Use a heater with caution. <b>Do not use</b> hot water bottles or fluorescent lamps.</li> </ol>	<p>Low temperature NOTE: Hypothermia in children with SAM may indicate co-existing hypoglycaemia and serious infection.</p>	<p>Take axillary or rectal temperature on admission. (Ensure thermometer with low reading is well shaken down.)</p> <p><b>If the axillary temperature is &lt; 35.0°C or rectal temperature is &lt; 35.5° C:</b></p> <ol style="list-style-type: none"> <li>1. Feed straightaway (or start rehydration if needed).</li> <li>2. Re-warm. Put the child on the mother’s bare chest, skin-to-skin contact (kangaroo technique) and cover them, OR clothe the child including the head, cover with a warmed blanket and place a heater or incandescent lamp near the bed.</li> <li>3. Feed 2-hourly (12 feeds in 24 hours).</li> </ol> <p><b>Monitor during re-warming</b></p> <ul style="list-style-type: none"> <li>➤ Take rectal temperature every 2 hours; stop re-warming when temperature rises above 36.5° C.</li> <li>➤ Take temperature every 30 minutes if heater is used because the child may become overheated.</li> </ul>
<p><b>3. Prevent or Treat Dehydration</b> (Too little fluid in the body)</p>	<p>When a child has watery diarrhoea, give ReSoMal orally (or, if the child is unconscious or too ill to take the ReSoMal orally, by NGT between feeds after each loose stool:</p> <ul style="list-style-type: none"> <li>➤ For severe wasting, based on estimated volume of stool, give 50–100 ml after each watery stool if child is aged &lt; 2 years and 100–200 ml if aged 2 years or older.</li> <li>➤ For oedema, give 30 ml after each watery stool.</li> </ul> <p>If the child is breastfed, encourage to continue.</p>	<p>Assume severe dehydration if there is recent history of profuse watery diarrhoea and recent sunken eyes. (Recent = within 24 hours)</p>	<p>DO NOT GIVE IV FLUIDS EXCEPT IN SHOCK (see Action Protocols in Inpatient Care Job Aid for information on treating shock).</p> <p><b>If dehydrated:</b></p> <ol style="list-style-type: none"> <li>1. Give ReSoMal 5 ml/kg every 30 minutes for 2 hours orally (or, if the child is unconscious or too ill to take the ReSoMal orally, by NGT).</li> <li>2. Then give 5–10 ml/kg in alternate hours for up to 10 hours (i.e., give ReSoMal and F-75 in alternate hours); use Initial Management Record for monitoring.</li> <li>3. Stop ReSoMal when there are signs of hydration (e.g., return of tears, passing urine, moist mouth).</li> <li>4. Give ReSoMal orally (or, if the child is unconscious or too ill to take the ReSoMal orally, by NGT) between feeds after each loose stool: <ul style="list-style-type: none"> <li>➤ For severe wasting, based on estimated volume of stool, give 50–100 ml after each watery stool if child is aged &lt; 2 years and 100–200 ml if aged 2 years or older.</li> <li>➤ For oedema, give 30 ml after each watery stool.</li> </ul> </li> </ol> <p><b>STOP ReSoMal if there are any signs of over-hydration:</b></p> <ul style="list-style-type: none"> <li>➤ Increasing pulse and respiratory rate (pulse increased by at least 25 beats/minute and resp. rate by at least 5 breaths/minute); increasing oedema; puffy eyelids.</li> </ul>

STEP	PREVENTION	WARNING SIGNS	IMMEDIATE ACTION
<b>4. Correct Electrolyte Imbalance</b> <i>(Too little potassium and magnesium, and too much sodium)</i>	Use F-75 (and ReSoMal in case of watery diarrhoea) in stabilisation phase as these are low in sodium and contain adequate amounts of other micronutrients.	Lethargy, weakness, abdominal distension, puffy face, oedema develops or worsens.	<p><b>If no clinical signs:</b> Follow feeding recommendation, prevent dehydration, treat dehydration (rehydration with ReSoMal: low-sodium rehydration fluid).</p> <p><b>If clinical signs of hypokalemia,</b> give extra potassium (4 mmol/kg).</p> <p><b>If clinical signs of hypomagnesium,</b> give extra magnesium (0.6 mmol/kg).</p> <p><b>NOTE:</b> Potassium and magnesium are already added in commercial F-75, F-100, RUTF and ReSoMal packets. They are also in CMV.</p>
<b>5. Prevent or Treat Infections and Infestations</b>	<ol style="list-style-type: none"> <li>Keep children with SAM in a separate ward.</li> <li>Reduce overcrowding if possible.</li> <li>Provide good nursing care:               <ul style="list-style-type: none"> <li>➤ Give drugs in time.</li> <li>➤ Monitor vital signs.</li> <li>➤ Wash your hands before preparing feeds, after use of bathroom, after change of nappies, before and after handling the child.</li> <li>➤ Ensure good hygiene in the ward.</li> </ul> </li> <li>Give amoxicillin, 15-30 mg/kg, 3 times per day, for 5 days, orally, even if no clinical signs</li> <li>Give antihelminth after 1 week in treatment to children &gt;1 year, even if no clinical sign.</li> <li>Give measles vaccine to unimmunised children &gt;6 months old.</li> </ol>	<p>The usual signs of infection, such as fever, are often absent, so assume all children with SAM have infection and should be treated with antibiotics.</p> <p>Hypothermia and hypoglycaemia may be signs of severe infection.</p>	<p><b>Starting on the first day, give broad-spectrum antibiotics to all children.</b></p> <ol style="list-style-type: none"> <li><b>If the child has no medical complications,</b> give amoxicillin orally 15–30 mg/kg every 8 hours for 5 days.</li> <li><b>If the child is severely ill, lethargic or unconscious, or has complications</b> (hypoglycaemia, hypothermia, raw skin/fissures, respiratory tract or urinary tract infection):           <ul style="list-style-type: none"> <li>➤ First-line: Give amoxicillin-clavulanic acid 15–30 mg/kg, 3 times per day, for 5–10 days, orally AND gentamicin 7.5 mg/kg, 1 time per day, for 5–10 days IV or IM</li> <li>➤ Second-line: If no improvement within 48 hours, add chloramphenicol 25 mg/kg, 3 times per day, for 5 days, IM/IV (Chloramphenicol should not be used for infants under 2 months of age)</li> <li>➤ Third-line: If no improvement within 48 hours, give ceftriaxone, 100 mg/kg, 1 time per day, for 5–10 days, IV or IM</li> </ul> </li> </ol> <p>If specific infections are identified that require specific antibiotic(s) not already being given, give additional antibiotic(s) and medicines to address the infection(s) and infestations according to the national protocol (e.g., tuberculosis, HIV infection, giardiasis).</p> <p><b>For parasitic worms</b> (e.g., helminthiasis, whipworm):</p> <ol style="list-style-type: none"> <li>Give presumptive treatment with antihelminthic after 1 week in SAM treatment           <ul style="list-style-type: none"> <li>➤ Do not give to children under 1 year</li> <li>➤ Children 1–2 years: Give albendazole 200 mg single dose, or mebendazole 100 mg, 1 time per day, for 3 days, orally</li> <li>➤ Children 2 years or older: Give albendazole 400 mg single dose, or mebendazole 100 mg, 2 times per day, for 3 days, orally</li> </ul> </li> </ol> <p><b>2. If severe infestation, treat immediately, with doses as above for presumptive treatment.</b></p>
STEP	MANAGEMENT		
<b>6. Correct Micronutrient Deficiencies</b>	<ol style="list-style-type: none"> <li><b>Vitamin A:</b> <ul style="list-style-type: none"> <li>➤ Preventive dose: Give Vitamin A single dose after 4 weeks or upon discharge if no dose has been given in past 3 months: &lt; 6 months old 50,000 IU; 6–12 months old, 100,000 IU; &gt; 12 months old, 200,000 IU.</li> <li>➤ Therapeutic dose: Give vitamin A on days 1, 2 and 15: &lt; 6 months old 50,000 IU; 6–12 months old 100,000 IU; &gt; 12 months old 200,000 IU.</li> </ul> </li> <li><b>Folic acid:</b> Give 5 mg single dose on day 1.</li> <li><b>Iron sulphate</b> (ferrous fumarate, 3 mg/kg/day): Add a 200 mg crushed tablet to 2–2.4 L of F-100 for feeds of children, or give for 3–6 kg 0.5 ml, for 6–10 kg 0.75 ml, for 10–15 kg 1 ml <b>after 2 days in transition phase. Do not give iron in stabilisation phase or if the child is receiving RUTF.</b></li> </ol> <p><b>NOTE: Vitamin A, folic acid, zinc and copper are already added in the commercial F-75, F-100, RUTF and ReSoMal packets. They are also in CMV.</b></p>		

STEP	MANAGEMENT
<b>7. Start Cautious Feeding</b>	<p><b>Stabilisation phase:</b></p> <ol style="list-style-type: none"> <li>1. Give F-75 therapeutic milk 130 ml/kg/day and divide into 2- to 3-hourly feeds (see F-75 Look-Up Table for amounts for severe wasting and mild and moderate oedema [+ ++] in stabilisation phase). This provides 100 kcal/kg/day.</li> <li>2. If the child has severe oedema (+++), reduce the volume to 100 ml/kg/day (see F-75 Look-Up Table for amounts for severe oedema [+++] in stabilisation phase).</li> <li>3. Give 2-hourly feeds in the first 24 hours, then change to 3-hourly feeds according to the condition of the child.</li> <li>4. If the child has poor appetite, encourage the mother to support the child finishing the feed. If the child takes &lt; 80% of the amount offered for two consecutive feeds, use an NGT (see F-75 Look-Up Table for 80% amount or daily minimum amount).</li> <li>5. Keep a 24-Hour Food Intake Chart. Measure feeds carefully. (Record leftovers and estimated amount vomited.)</li> <li>6. If the child is breastfed, always offer breastfeeding before giving F-75.</li> <li>7. Weigh daily and plot weight.</li> <li>8. When appetite returns, and infection resolves and oedema is reducing (usually within 1 week), move the child to transition phase.</li> </ol> <p><b>Transition phase:</b></p> <ol style="list-style-type: none"> <li>1. Introduce RUTF: <ul style="list-style-type: none"> <li>➤ Test the appetite with RUTF. Offer plenty of clean water to drink.</li> <li>➤ If the child takes the RUTF (passes the appetite test), continue all feeds with RUTF, based on 150 kcal/kg/day. Complete the feed with F-100 if necessary (see RUTF and F-100 Look-Up Tables for amounts in transition phase).</li> <li>➤ If the child does not take RUTF, give F-100 but repeat the appetite test at every feed.</li> </ul> </li> <li>2. If the child is breastfed, encourage continued breastfeeding.</li> <li>3. Weigh daily and plot weight. (The child should not gain more than 5 g/kg/day.)</li> <li>4. When the child is able to eat at least 75% of the RUTF, observe the child for 24 hours to ensure he/she is able to eat the daily amount of RUTF. If the child is clinically well and alert and the oedema is reducing, refer the child to Outpatient Care for continuing treatment.</li> <li>5. If RUTF is not available, continue feeding the child with F-100 130-150 ml/kg/day and divide in 5-6 hourly feeds. This provides 130-150 kcal/kg/day.</li> </ol>
<b>8. Increase Feeding to Recover Weight Loss: “Catch-Up Growth”</b>	<p><b>Rehabilitation phase (for the exceptional cases who stay in Inpatient Care):</b></p> <ol style="list-style-type: none"> <li>1. Give RUTF (see RUTF Look-Up Table for amounts in rehabilitation phase). Offer plenty of water to drink.</li> <li>2. If RUTF is not available, and the child remains in Inpatient Care, continue free feeding on F-100 150-220 ml/kg/day. This provides 150-220 kcal/kg/day (see F-100 Look-Up Table for amounts in rehabilitation phase). If the child finishes the amount prescribed, offer extra amounts of F-100. Encourage the child to eat as much as possible, so the child can gain weight rapidly.</li> <li>3. If the child is breastfed, encourage continued breastfeeding.</li> <li>4. Weigh daily and plot weight. (The child should start gaining weight, i.e., more than 10 g/kg/day).</li> <li>5. Gradually introduce home foods after the child reaches the discharge criteria.</li> </ol>
<b>9. Stimulate Emotional and Sensorial Development</b>	<ol style="list-style-type: none"> <li>1. Provide tender loving care.</li> <li>2. Help and encourage mothers to comfort, feed and play with their children.</li> <li>3. Give structured play when the child is well enough.</li> </ol>
<b>10. Prepare for Referral and Follow-Up in Outpatient Care</b>	<ol style="list-style-type: none"> <li>1. Fill in the Outcome page of the Inpatient Management Record.</li> <li>2. Inform the mother of the closest Outpatient Care site to her home and give the mother a weekly ration of RUTF to continue treatment at home.</li> <li>3. Send for immunisation update.</li> <li>4. Establish a link with community health workers for home follow-up in Outpatient Care.</li> <li>5. Write a clinical summary on the referral form for the health care providers in Outpatient Care.</li> </ol>





## Routine Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care

Name of Medication	When to Give	Age/Weight	Prescription	Dose
AMOXICILLIN	On admission if <b>no</b> medical complication  (also includes cases with severe oedema (+++), severe anaemia, oedema with severe wasting without other medical complications)	6–59 months	Amoxicillin 45–90 mg/kg/day	15–30 mg/kg, orally, 3 times per day, for 5 days
ALBENDAZOLE or MEBENDAZOLE	After 1 week, for presumptive treatment  Immediate, for treatment in case of severe infestation	≥ 12 months	1–2 years: Albendazole 200 mg Mebendazole 300 mg  > 2 years: Albendazole 400 mg Mebendazole 600 mg	Albendazole: 1–2 years: 200 mg single dose > 2 years: 400 mg single dose  Mebendazole: 1–2 years: 100 mg, 1 time per day, for 3 days > 2 years: 100 mg, 2 times per day, for 3 days
VITAMIN A	On admission if <b>eye signs</b> of vitamin A deficiency	All ages	< 6 months: 50,000 IU 6–11 months: 100,000 IU ≥ 12 months: 200,000 IU	1 dose on admission, day 2 and day 15
	On week 4 or discharge (and oedema free) if <b>no eye signs</b> of vitamin A deficiency	6–59 months	6–11 months: 100,000 IU ≥ 12 months: 200,000 IU	Delayed single dose

### **Folic Acid and Iron:**

- Folic acid **5 mg of folic acid, 1 single dose** is given on admission.
- Iron (ferrous sulphate) **3 mg/kg/day is given after 2 days on F-100, when gaining weight.**
- Iron and folic acid should never be provided together with a malaria treatment. Malaria is treated first.
- A child 6–59 months old with SAM on an RUTF diet receives neither folic acid nor iron, as the daily dose of RUTF contains sufficient iron (10 mg/100 g or 500 kcal) and folic acid (210 µg/100 g or 500 kcal).

### **Zinc:**

- Zinc is not given in cases of diarrhoea, as the daily dose of F-75, F-100 and RUTF contains sufficient zinc (daily dose provides 30–45 mg of elemental zinc).

### **Antimalarial Drugs:**

- Refer to the national guidelines for first-, second- and third-line treatment and for when to give or not give presumptive malaria treatment.

### **Vaccination:**

- Give measles vaccine upon admission if child > 6 months and has not yet received the measles vaccine.
- Update all vaccines.



## Other Medicine Protocols for Children under 5 with SAM in Inpatient Care\*

Name of Medication	When to Give	Prescription	Special Instructions
AMOXICILLIN-CLAVULANIC ACID**	<b>IF</b> SAM with medical complication (severe infection) <i>(first-line antibiotic)</i>	15–30 mg/kg, orally, 3 times per day, for 5–10 days	Give in combination with gentamicin.
GENTAMICIN**		7.5 mg/kg, IV or IM, 1 time per day, for 5–10 days	Give in combination with amoxicillin-clavulanic acid.
CHLORAMPHENICOL**	<b>IF</b> no improvement with first-line antibiotic within 48 hours <i>(second-line antibiotic)</i>	25 mg/kg, IV or IM, 3 times per day, for 5–10 days (4 times per day if meningitis is suspected)	Add to first-line treatment. Do not give to an infant < 2 months.
CEFTRIAXONE** (Third-generation cephalosporin)	<b>IF</b> no improvement with second-line antibiotic after 48 hours <i>(third-line antibiotic)</i>	100 mg/kg, IV or IM, 1 time per day, for 5–10 days	Give as a single daily dose.
TETRACYCLINE EYE OINTMENT <i>or</i> CHLORAMPHENICOL EYE DROPS	For treatment of eye infection	1 drop, 2 times per day  1 drop, 4 times per day	Wash hands before and after use; wash eyes before application; continue for 2 days after disappearance of signs of infection.
ATROPINE 1%	As part of treatment of corneal clouding and corneal ulceration	1 drop, 3 times per day: morning, afternoon and at night before sleep	May be used to relieve pain as pupil dilatation stops ciliary muscle spasms.
NYSTATIN	For treatment of candidiasis	100,000 units (1 ml) 4 times per day after food, for 7 days	Use dropper and show caregiver how to use it.
PARACETAMOL	For treatment of fever over 38.5° C	10 mg/kg	Give upon admission to all children with high fever.
BENZYL BENZOATE	For treatment of scabies	Apply over whole body; repeat without bathing on following day; wash off 24 hours later	Avoid eye contact; do not use on broken or secondary infected skin.
WHITFIELDS	For treatment of ringworm, taenia or fungal infections of the skin	Apply 2 times per day	Continue treatment until condition has completely resolved.
GENTIAN VIOLET	For treatment of minor abrasions or fungal infections of the skin	Apply on lesion	Can be repeated; continue until condition has resolved.

\*Not listed: medicine protocols for treating other infections and infestations, such as tuberculosis, HIV, giardiasis; refer to the national treatment protocols.

\*\* Antibiotic protocols for infants under 2 months (or infants with weight < 2.0 kg) with SAM and clinical infections: Give ceftriaxone 50 mg/kg, IM, 1 time per day, for 5–10 days; refer to the national IMNCI protocols.



# Action Protocols in Inpatient Care

## Emergency Treatment of Severe Acute Malnutrition in Children under 5

Children with SAM are **different** from other children and they need **different treatment**.

CONDITION	IMMEDIATE ACTION
<p><b>Shock</b> Shock is if the child is lethargic, or unconscious and has cold hands, plus either slow capillary refill (longer than 3 seconds) or weak or fast pulse</p>	<p><b>If the child is in shock:</b></p> <ol style="list-style-type: none"> <li>1. Give oxygen.</li> <li>2. Give sterile 10% glucose (5 ml/kg) by IV.</li> <li>3. Give IV fluid at 15 ml/kg over 1 hour, using one of the following solutions in order of preference: <ul style="list-style-type: none"> <li>• Half-strength Darrow's solution with 5% glucose (or dextrose)</li> <li>• Ringer's lactate with 5% glucose*</li> <li>• Half-normal saline with 5% glucose*</li> </ul> <i>* If either of these is used, add sterile potassium chloride (20 mmol/L) if possible.</i> </li> <li>4. Keep the child warm.</li> <li>5. Measure and record pulse and respirations every 10 minutes.</li> <li>6. Give antibiotics.</li> </ol> <p><b>If there are signs of improvement</b> (pulse and respiration rates fall), repeat IV 15 ml/kg for 1 more hour.</p> <p><b>If there are no signs of improvement after the first hour of IV fluid</b>, assume child has septic shock. In this case:</p> <ol style="list-style-type: none"> <li>1. Give maintenance fluids (4 ml/kg/hour) while waiting for blood.</li> <li>2. Order 10 ml/kg fresh whole blood and when blood is available, stop oral intake and IV fluids.</li> <li>3. Give a diuretic.</li> <li>4. Transfuse whole fresh blood (10 ml/kg slowly over 3 hours).</li> </ol> <p>If there are signs of heart failure: give packed cells instead of whole blood.</p> <p><b>Monitor during rehydration for signs of over-hydration:</b></p> <ul style="list-style-type: none"> <li>• Increasing pulse and respiratory rate</li> <li>• Increasing oedema and puffy eyelids</li> </ul> <p>Stop if pulse increases by 25 or more beats/minute and respiratory rate by 5 or more respirations/minute.</p>
<p><b>Severe dehydration*</b> Severe dehydration is assumed if there is recent history of profuse watery diarrhoea and if recent sunken eyes (recent = within 24 hours).</p> <p><i>* In case of suspected hypernatraemic dehydration, see the hypernatraemic dehydration job aid</i></p>	<p><b>If the child has severe dehydration, DO NOT GIVE IV FLUIDS EXCEPT IF IN SHOCK, but:</b></p> <ol style="list-style-type: none"> <li>1. Give ReSoMal 5 ml/kg every 30 minutes for 2 hours orally (or, if child is unconscious or too ill to take the ReSoMal orally, give by NGT). Do not give standard ORS to severely malnourished children</li> <li>2. Measure and record pulse and respirations every 30 minutes for 2 hours.</li> <li>3. Give ReSoMal 5–10 ml/kg/hour for next 4–10 hours in alternate hours with F-75.</li> </ol> <p><b>STOP</b> if signs of hydration appear (passing urine, moist tongue, making saliva, not thirsty).</p> <p><b>STOP</b> if any sign of over-hydration appears (increased respiratory rate and pulse rate, engorged jugular vein, increasing oedema and puffy eyelids). Only give ReSoMal for <b>up to 10 hours</b>.</p> <p><b>Monitor during rehydration for signs of over-hydration:</b></p> <ul style="list-style-type: none"> <li>• Increasing pulse and respiratory rates</li> <li>• Increasing oedema and puffy eyelids</li> </ul> <p>Stop if pulse increases by 25 beats/minute and respiratory rate by 5 breaths/minute.</p>
<p><b>Very severe anaemia</b> Very severe anaemia is Hb &lt; 4 g/dl or Hb &lt; 6 g/dl AND respiratory distress</p>	<p><b>If the child has very severe anaemia</b>, a blood transfusion is required.</p> <ol style="list-style-type: none"> <li>1. Stop all oral intake and IV fluids during the transfusion.</li> <li>2. Look for signs of congestive failure.</li> <li>3. Give a diuretic. Furosemide 1 ml/kg IV at the start of the transfusion is the most appropriate choice.</li> <li>4. <u>If there are no signs of congestive failure</u>, give whole fresh blood 10 ml/kg body weight slowly over 3 hours. <u>If there are signs of congestive heart failure</u>, give 5–7 ml/kg packed cells over 3 hours rather than whole blood.</li> </ol>
<p><b>Hypoglycaemia</b> Hypoglycaemia is a blood glucose &lt; 3 mmol/L or &lt; 54 mg/dl); assume hypoglycaemia if no testing is available</p>	<p>Perform blood glucose test (dextrostix) on admission, before giving glucose or feeding.</p> <p><b>If hypoglycaemia is suspected and blood glucose testing is not possible, assume that the child has hypoglycaemia and give treatment immediately without test confirmation.</b></p> <p><b>If the child is conscious:</b></p> <ol style="list-style-type: none"> <li>1. Give a bolus of 10% glucose (50 ml) or sugar solution orally (1 rounded teaspoon sugar in 3 tablespoons of water). Bolus of 10% glucose is best, but give sugar solution or F-75 rather than wait for glucose.</li> <li>2. Start feeding with F-75 straightaway: Feed 2-hourly (12 feeds in 24 hours). Use feed chart to find amount to give and feed every 2–3 hours day and night. Start antibiotics.</li> </ol> <p><b>If the child is unconscious, lethargic or convulsing:</b> Give glucose IV (5 ml/kg of sterile 10% glucose), followed by 50 ml of 10% glucose or sucrose by NGT. Then give starter F-75 as above. Start antibiotics.</p>
<p><b>Hypothermia</b> Hypothermia is an axillary temperature &lt; 35.0° C or rectal temperature &lt; 35.5° C</p>	<p><b>If the child is hypothermic:</b></p> <ol style="list-style-type: none"> <li>1. Feed straightaway and then every 2 hours, day and night.</li> <li>2. Keep warm.</li> <li>3. Use the kangaroo technique, cover with a blanket. Let mother sleep with child to keep child warm.</li> <li>3. Keep room warm, no draughts.</li> <li>4. Keep bedding/clothes dry. Do not bathe if very ill.</li> <li>5. Avoid exposure during examinations.</li> <li>6. Use a heater or incandescent lamp with caution. <b>Do not use</b> hot water bottles or fluorescent lamps.</li> </ol>
<p><b>Emergency eye signs</b> Corneal clouding and corneal ulceration</p>	<p><b>If the child has corneal clouding or corneal ulceration:</b></p> <ol style="list-style-type: none"> <li>1. Give vitamin A immediately (&lt; 6 months 50,000 IU, 6–12 months 100,000 IU, &gt; 12 months 200,000 IU).</li> <li>2. Instil one drop atropine (1%) into affected eye(s) to relax the eye and prevent the lens from pushing out.</li> </ol>





## Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care

**Alert a physician if danger signs occur:**

	Normal Ranges	Danger Signs	Suggests
<b>Pulse and Respirations</b>	<b>0–2 months:</b> <ul style="list-style-type: none"> <li>• Pulse 80–160 beats/minute</li> <li>• Respirations 20–60 breaths/minute*</li> </ul> <b>2–12 months:</b> <ul style="list-style-type: none"> <li>• Pulse 80–160 beats/minute</li> <li>• Respirations 20–50 breaths/minute*</li> </ul> <b>12–60 months (5 years):</b> <ul style="list-style-type: none"> <li>• Pulse 80–140</li> <li>• Respirations 20–40</li> </ul>	Confirmed increase in pulse rate of $\geq 25$ beats/minute <b>along with</b> Confirmed increase in respiratory rate of $\geq 5$ breaths/minute	<ul style="list-style-type: none"> <li>• Infection</li> </ul> <p style="text-align: center;"><b>or</b></p> <ul style="list-style-type: none"> <li>• Heart failure (possibly from over-hydration due to feeding or rehydrating too fast)</li> </ul>
<b>Respirations Only</b>	<b>0–2 months:</b> <ul style="list-style-type: none"> <li>• Respirations 20–60*</li> </ul> <b>2–12 months:</b> <ul style="list-style-type: none"> <li>• Respirations 20–50*</li> </ul> <b>12–60 months (5 years):</b> <ul style="list-style-type: none"> <li>• Respirations 20–40</li> </ul>	<b>0–2 months:</b> <ul style="list-style-type: none"> <li>• Fast breathing is considered <math>\geq 60</math> breaths/minute</li> </ul> <b>2–12 months:</b> <ul style="list-style-type: none"> <li>• Fast breathing is considered <math>\geq 50</math> breaths/minute</li> </ul> <b>12–60 months (5 years):</b> <ul style="list-style-type: none"> <li>• Fast breathing is considered <math>\geq 40</math> breaths/minute</li> </ul>	<ul style="list-style-type: none"> <li>• Pneumonia</li> </ul>
<b>Temperature</b>	<b>Axillary temperature:</b> <ul style="list-style-type: none"> <li>• <math>\geq 35^\circ\text{C}</math> and <math>&lt; 38.5^\circ\text{C}</math></li> </ul> <b>Rectal temperature:</b> <ul style="list-style-type: none"> <li>• <math>\geq 35.5^\circ\text{C}</math> and <math>&lt; 39^\circ\text{C}</math></li> </ul>	<ul style="list-style-type: none"> <li>• Any sudden increase or decrease in temperature</li> <li>• Axillary temperature <math>&lt; 35^\circ\text{C}</math> or <math>\geq 38.5^\circ\text{C}</math> or Rectal temperature <math>&lt; 35.5^\circ\text{C}</math> or <math>\geq 39^\circ\text{C}</math></li> </ul>	<ul style="list-style-type: none"> <li>• Infection</li> <li>• Hypothermia (possibly due to infection, a missed feed or child being uncovered)</li> </ul>

In addition to the signs listed above, watch for other danger signs, such as:

- |   |   |   |                        |
|---|---|---|------------------------|
| • Anorexia (loss of appetite)                       | • Cyanosis (tongue/lips turning blue from lack of oxygen) | • Difficulty feeding or waking (drowsy) | • Large weight changes |
| • Change in mental state (e.g., becoming lethargic) | • Difficulty breathing                                    | • Abdominal distension                  | • Increased vomiting   |
| • Jaundice (yellowish skin or eyes)                 |   | • New oedema                            | • Petechiae (bruising) |

\* Infants under 12 months will normally breathe fast without having pneumonia. However, unless the infant's normal respiratory rate is known to be high, he/she should be assumed to have either over-hydration or pneumonia. Careful evaluation, taking into account prior fluid administration, will help differentiate the two conditions and plan appropriate treatment.





## F-75 for Use with Severe Wasting and Mild and Moderate Bilateral Pitting Oedema (+ ++) in Stabilisation Phase

Look-Up Table for Amounts of F-75 Based on 100 kcal/kg/day or 130 ml/kg/day

Weight of child (kg)	Volume of F-75 per feed (ml) <sup>a</sup>			Daily total (130 ml/kg)	80% or daily minimum
	Every 2 hours <sup>b</sup> (12 feeds)	Every 3 hours <sup>c</sup> (8 feeds)	Every 4 hours (6 feeds)		
4.0	45	65	90	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	55	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	120	702	560
5.6	60	90	125	728	580
5.8	65	95	130	754	605
6.0	65	100	130	780	625
6.2	70	100	135	806	645
6.4	70	105	140	832	665
6.6	75	110	145	858	685
6.8	75	110	150	884	705
7.0	75	115	155	910	730
7.2	80	120	160	936	750
7.4	80	120	160	962	770
7.6	85	125	165	988	790
7.8	85	130	170	1014	810
8.0	90	130	175	1040	830
8.2	90	135	180	1066	855
8.4	90	140	185	1092	875
8.6	95	140	190	1118	895
8.8	95	145	195	1144	915
9.0	100	145	200	1170	935
9.2	100	150	200	1196	960
9.4	105	155	205	1222	980
9.6	105	155	210	1248	1000
9.8	110	160	215	1274	1020
10.0	110	160	220	1300	1040

<sup>a</sup> Volumes in these columns are rounded to the nearest 5 ml. 80% is related to the minimum maintenance amount a child should receive in a day based on 100 ml/kg/day or 80 kcal/kg/day.

<sup>b</sup> Feed every 2 hours for at least the first day. Then, when the child has little or no vomiting, modest diarrhoea (< 5 watery stools per day) and is finishing most feeds, change to feeds every 3 hours.

<sup>c</sup> After a day on feeds every 3 hours: If no vomiting, less diarrhoea and finishing most feeds, change to feeds every 4 hours.



## F-75 for Use with Severe Bilateral Pitting Oedema (+++) in Stabilisation Phase

Look-Up Table for Amounts of F-75 Based on 100 ml/kg/day

(equivalent to 100 kcal/kg/day if body weight is corrected for increased weight with severe oedema)

Weight of child with severe oedema (+++) (kg)	Volume of F-75 per feed (ml) <sup>a</sup>			Daily total (100 ml/kg)	80% or daily minimum
	Every 2 hours <sup>b</sup> (12 feeds)	Every 3 hours <sup>c</sup> (8 feeds)	Every 4 hours (6 feeds)		
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1000	800
10.2	85	130	170	1020	815
10.4	85	130	175	1040	830
10.6	90	135	175	1060	850
10.8	90	135	180	1080	865
11.0	90	140	185	1100	880
11.2	95	140	185	1120	895
11.4	95	145	190	1140	910
11.6	95	145	195	1160	930
11.8	100	150	195	1180	945
12.0	100	150	200	1200	960

<sup>a</sup> Volumes in these columns are rounded to the nearest 5 ml.

<sup>b</sup> Feed every 2 hours for at least the first day. Then, when the child has little or no vomiting, modest diarrhoea (< 5 watery stools per day) and is finishing most feeds, change to feeds every 3 hours.

<sup>c</sup> After a day on feeds every 3 hours: If no vomiting, less diarrhoea and finishing most feeds, change to feeds every 4 hours.



## F-100 for Use in Transition Phase

Look-Up Table for Amounts of F-100 Based on 130 kcal/kg/day or 130 ml/kg/day, if No RUTF Is taken<sup>1</sup>

Weight of child (kg)	Volume of F-100 per feed (ml) <sup>a</sup>		Daily total (130 ml/kg)	80% or daily minimum
	Every 3 hours (8 feeds)	Every 4 hours (6 feeds)		
4.0	65	90	520	415
4.2	70	90	546	435
4.4	70	95	572	460
4.6	75	100	598	480
4.8	80	105	624	500
5.0	80	110	650	520
5.2	85	115	676	540
5.4	90	120	702	560
5.6	90	125	728	580
5.8	95	130	754	605
6.0	100	130	780	625
6.2	100	135	806	645
6.4	105	140	832	665
6.6	110	145	858	685
6.8	110	150	884	705
7.0	115	155	910	730
7.2	120	160	936	750
7.4	120	160	962	770
7.6	125	165	988	790
7.8	130	170	1014	810
8.0	130	175	1040	830
8.2	135	180	1066	855
8.4	140	185	1092	875
8.6	140	190	1118	895
8.8	145	195	1144	915
9.0	145	200	1170	935
9.2	150	200	1196	960
9.4	155	205	1222	980
9.6	155	210	1248	1000
9.8	160	215	1274	1020
10.0	160	220	1300	1040

<sup>a</sup> Volumes in these columns are rounded to the nearest 5 ml.

<sup>1</sup> If RUTF is available, gradually introduce RUTF at each feed. For RUTF amounts, see RUTF look-up tables in transition phase job aid (for RUTF 500 kcal/packet of 92 grams). If the child does not yet eat the entire daily amount of RUTF, complement the RUTF with F-100 based on 20 mg of RUTF equals about 100 ml of F-100. Or, if the child started feeding in transition on F-100, and RUTF is gradually introduced, complement the amount of F-100 with amounts of RUTF based on 100 ml of F-100 equals about 20 mg of RUTF.



## Free Feeding with F-100 in Rehabilitation Phase

Look-Up Table for Amounts for Free Feeding with F-100 Based on 150–220 kcal/kg/day or 150–220 ml/kg/day, if No RUTF Is Taken<sup>2</sup>

Weight of Child (kg)	Range of volumes per feed of F-100 <sup>a</sup> every 4 hours (6 feeds daily)		Range of daily volumes of F-100	
	Minimum (ml)	Maximum (ml)	Minimum (150 ml/kg/day)	Maximum (220 ml/kg/day)
4.0	100	145	600	880
4.2	105	155	630	924
4.4	110	160	660	968
4.6	115	170	690	1012
4.8	120	175	720	1056
5.0	125	185	750	1100
5.2	130	190	780	1144
5.4	135	200	810	1188
5.6	140	205	840	1232
5.8	145	215	870	1276
6.0	150	220	900	1320
6.2	155	230	930	1364
6.4	160	235	960	1408
6.6	165	240	990	1452
6.8	170	250	1020	1496
7.0	175	255	1050	1540
7.2	180	265	1080	1588
7.4	185	270	1110	1628
7.6	190	280	1140	1672
7.8	195	285	1170	1716
8.0	200	295	1200	1760
8.2	205	300	1230	1804
8.4	210	310	1260	1848
8.6	215	315	1290	1892
8.8	220	325	1320	1936
9.0	225	330	1350	1980
9.2	230	335	1380	2024
9.4	235	345	1410	2068
9.6	240	350	1440	2112
9.8	245	360	1470	2156
10.0	250	365	1500	2200

<sup>a</sup> Volumes per feed are rounded to the nearest 5 ml.

<sup>2</sup> If RUTF is available, offer RUTF at each feed. RUTF amounts: See RUTF look-up tables in rehabilitation phase job aid (for RUTF 500 kcal/packet of 92 grams). If the child does not yet eat the entire daily amount of RUTF, complement the RUTF with F-100 based on 20 mg of RUTF equals about 100 ml of F-100.



## Infants under 6 Months with *Breastfeeding*: F-100-Diluted (Severe Wasting) or F-75 (Oedema)

Look-Up Table for Amounts of F-100-Diluted (Severe Wasting) or F-75 (Oedema) for

Infant's Weight (kg)	F-100-Diluted or F-75 in case of oedema (ml per feed if 12 feeds per day)	F-100-Diluted or F-75 in case of oedema (ml per feed if 8 feeds per day)
< 1.3	20	25
1.3 – 1.5	25	30
1.6 – 1.8	30	35
1.9 – 2.1	30	40
2.2 – 2.4	35	45
2.5 – 2.7	40	50
2.8 – 2.9	40	55
3.0 – 3.4	45	60
3.5 – 3.9	50	65
4.0 – 4.4	50	70



## Infants under 6 Months without *Breastfeeding*:

### Stabilisation Phase Look-Up Table for Amounts of F-100-Diluted (Severe Wasting) or F-75 (Oedema) Based on 100 kcal/kg/day or 130 ml/kg/day

Infant's Weight (kg)	F-100-Diluted or F-75 (ml per feed if 12 feeds per day)	F-100-Diluted or F-75 (ml per feed if 8 feeds per day)
< 1.3	20	25
1.3 – 1.5	25	30
1.6 – 1.8	30	35
1.9 – 2.1	30	40
2.2 – 2.4	35	45
2.5 – 2.7	40	50
2.8 – 2.9	40	55
3.0 – 3.4	45	60
3.5 – 3.9	50	65
4.0 – 4.4	50	70

### Transition Phase Look-Up Table for Amounts of F-100-Diluted Based on 110–130 kcal/kg/day or 150–170 ml/kg/day

Infant's Weight (kg)	F-100-Diluted (ml per feed if 8 feeds per day)
< 1.6	45
1.6 – 1.8	53
1.9 – 2.1	60
2.2 – 2.4	68
2.5 – 2.7	75
2.8 – 2.9	83
3.0 – 3.4	90
3.5 – 3.9	96
4.0 – 4.4	105

### Rehabilitation Phase Look-Up Table for Amounts of F-100-Diluted Based on 150 kcal/kg/day or 200 ml/kg/day

Infant's Weight (kg)	F-100-Diluted (ml per feed if 6–8 feeds per day)
< 1.6	60
1.6 – 1.8	70
1.9 – 2.1	80
2.2 – 2.4	90
2.5 – 2.7	100
2.8 – 2.9	110
3.0 – 3.4	120
3.5 – 3.9	130
4.0 – 4.4	140



## RUTF Appetite Test for Children 6–59 Months with SAM in Inpatient Care

The appetite test is conducted as soon as the child's condition has stabilised and the appetite has returned.

- Explain to the mother/caregiver:
  - What is ready-to-use therapeutic food (RUTF)
  - The transition of a therapeutic milk diet to an RUTF diet as part of the treatment
  - The purpose of the test and the procedure
- Advise the mother/caregiver to:
  - Wash her hands before giving the RUTF
  - Sit with her child in her lap and gently offer the RUTF
  - Encourage the child to eat the RUTF without force feeding
  - Offer plenty of clean water, to drink from a cup, when her child is eating the RUTF
- Observe the child eating the RUTF in 30 minutes and decide if the child passes or fails the test.

Pass Appetite Test	Fail Appetite Test
The child eats at least one-third of a packet of RUTF (92 g) or 3 teaspoons from a pot within 30 minutes.	The child does NOT eat one-third of a packet of RUTF (92 g) or 3 teaspoons from a pot within 30 minutes.

**Note:** If necessary, arrange a quiet corner where the child and mother/caregiver can take their time to get accustomed to eating the RUTF. Usually the child eats the RUTF in 30 minutes. A child who fails the appetite test will be offered RUTF at each feed before therapeutic milk is provided.



## Use of RUTF in Children 6–59 months with SAM in Inpatient Care

Amounts of 92 g Packets of RUTF Containing 500 kcal to Give to a Child per Day

Child's weight (kg)	Transition Phase	Rehabilitation Phase
	150 kcal/kg/day	200 kcal/kg/day
	<i>Packets per Day (92 g Packets Containing 500 kcal)</i>	<i>Packets per Day (92 g Packets Containing 500 kcal)</i>
4.0 – 4.9	1.5	2.0
5.0 – 6.9	2.1	2.5
7.0 – 8.4	2.5	3.0
8.5 – 9.4	2.8	3.5
9.5 – 10.4	3.1	4.0
10.5 – 11.9	3.6	4.5
≥ 12.0	4.0	5.0

### RUTF Key Messages in Inpatient Care

1. Do not share RUTF. RUTF is a food and medicine for very thin and swollen children only.
2. Give small, regular meals of RUTF and encourage the child to eat often (first 8 meals per day, later 5–6 meals per day). Your child should have \_\_\_ packets per day. Thin and swollen children often don't like to eat.
3. Continue to breastfeed regularly (if applicable). Offer breast milk first before every RUTF feed.
4. Do not give other food. RUTF is the only food apart from breast milk that thin and swollen children need to recover during their time in Inpatient Care.
5. Offer the child plenty of clean water to drink while he/she is eating RUTF. Children will need more water than normal.
6. Wash the child's hands and face with soap before feeding if possible.
7. Keep food clean and covered.
8. Keep the child covered and warm. Thin and swollen children get cold quickly. Do not stop feeding when a child has diarrhoea. Continue to feed RUTF and (if applicable) breast milk.



## Guidance Table to Identify Target Weight for Discharge from Management of Severe Acute Malnutrition for Children 6–59 Months

Weight on admission* (kg)	Target weight: 15% weight gain	Weight on admission* (kg)	Target weight: 15% weight gain
4.1	4.7	8.1	9.3
4.2	4.8	8.2	9.4
4.3	4.9	8.3	9.5
4.4	5.1	8.4	9.7
4.5	5.2	8.5	9.8
4.6	5.3	8.6	9.9
4.7	5.4	8.7	10.0
4.8	5.5	8.8	10.1
4.9	5.6	8.9	10.2
5.0	5.8	9.0	10.4
5.1	5.9	9.1	10.5
5.2	6.0	9.2	10.6
5.3	6.1	9.3	10.7
5.4	6.2	9.4	10.8
5.5	6.3	9.5	10.9
5.6	6.4	9.6	11.0
5.7	6.6	9.7	11.2
5.8	6.7	9.8	11.3
5.9	6.8	9.9	11.4
6.0	6.9	10.0	11.5
6.1	7.0	10.1	11.6
6.2	7.1	10.2	11.7
6.3	7.2	10.3	11.8
6.4	7.4	10.4	12.0
6.5	7.5	10.5	12.1
6.6	7.6	10.6	12.2
6.7	7.7	10.7	12.3
6.8	7.8	10.8	12.4
6.9	7.9	10.9	12.5
7.0	8.0	11.0	12.7
7.1	8.2	11.1	12.8
7.2	8.3	11.2	12.9
7.3	8.4	11.3	13.0
7.4	8.5	11.4	13.1
7.5	8.6	11.5	13.2
7.6	8.7	11.6	13.3
7.7	8.9	11.7	13.5
7.8	9.0	11.8	13.6
7.9	9.1	11.9	13.7
8.0	9.2	12.0	13.8

\*weight free of oedema





## Entry and Exit Categories for Monitoring the Management of Severe Acute Malnutrition in Children 6–59 Months

Inpatient Care	Outpatient Care
<b>ENTRY CATEGORIES</b>	
<p><b>New admission:</b> New case of child 6–59 months who meets the admission criteria – including <i>relapse</i> after cure (within 2 months)</p> <p><b>Other age group new admissions:</b> New case of infant, child, adolescent, adult (&lt; 6 months or ≥ 5 years) who is admitted for treatment of SAM in Inpatient Care</p> <p><b>Referral from Outpatient Care:</b> Condition of child deteriorated in Outpatient Care (according to action protocol) and child needs Inpatient Care</p> <p style="text-align: center;">Or</p> <p><b>Returned after defaulting</b> (within 2 months) (or <i>Moved</i> from other Inpatient Care site)*</p>	<p><b>New admission:</b> New case of child 6–59 months who meets the admission criteria – including <i>relapse</i> after cure (within 2 months)</p> <p><b>Other new admissions:</b> New case who does not meet preset admission criteria but needs treatment of SAM in Outpatient Care (special case, based on decision of supervisor)</p> <p><b>Referral from Inpatient Care:</b> Child 6–59 months referred from Inpatient Care after stabilisation and continues treatment in Outpatient Care</p> <p style="text-align: center;">Or</p> <p><b>Returned after defaulting</b> (within 2 months) (or <i>Moved</i> from other Outpatient Care site)*</p>
<b>EXIT CATEGORIES</b>	
<p><b>Referred to Outpatient Care:</b> Child’s condition has stabilised; child’s appetite has returned; the medical complication is resolving; and child is referred to Outpatient Care to continue treatment</p> <p><b>Discharged cured:</b> Child 6–59 months who remained in Inpatient Care until full recovery and meets discharge criteria, i.e., special cases that were not referred to Outpatient Care earlier</p> <p><b>Discharged died:</b> Child 6–59 months who dies while in Inpatient Care</p> <p><b>Discharged defaulted:</b> Child 6–59 months who is absent for 2 days</p> <p><b>Discharged non-recovered:</b> Child 6–59 months who remained in Inpatient Care and does not reach discharge criteria after 2 months in treatment</p>	<p><b>Referred to Inpatient Care:</b> Child’s condition has deteriorated or child is not responding to treatment (per the action protocol), and child is referred to Inpatient Care</p> <p><b>Discharged cured:</b> Child 6–59 months who meets discharge criteria</p> <p><b>Discharged died:</b> Child 6–59 months who dies while in Outpatient Care</p> <p><b>Discharged defaulted:</b> Child 6–59 months who is absent for 2 consecutive weeks</p> <p><b>Discharged non-recovered:</b> Child 6–59 months who does not reach discharge criteria after 4 months in treatment</p>

\* Movement between sites is likely in mobile populations or during emergencies.

