IMCI
INTEGRATED MANAGEMENT
OF CHILDHOOD ILLNESS

DISTANCE LEARNING COURSE

Module 6
Malnutrition and anaemia

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The WHO Department of Maternal, Newborn, Child and Adolescent Health initiated the development of these distance learning materials on the Integrated Management of Childhood illness (IMCI), in an effort to increase access to essential health services and meet demands of countries for materials to train primary health workers in IMCI at scale. These materials are intended to serve as an additional tool to increase coverage of trained health workers in countries to support the provision of basic health services for children. The technical content of the modules are based on new WHO guidelines in the areas of pneumonia, diarrhea, febrile conditions, HIV/AIDS, malnutrition, newborn sections, infant feeding, immunizations, as well as care for development.

Lulu Muhe of the WHO Department of Maternal, Newborn, Child and Adolescent Health (MCA) led the development of the materials with contributions to the content from WHO staff: Rajiv Bahl, Wilson Were, Samira Aboubaker, Mike Zangenberg, José Martines, Olivier Fontaine, Shamim Qazi, Nigel Rollins, Cathy Wolfheim, Bernadette Daelmans, Elizabeth Mason, Sandy Gove, from WHO/Geneva as well as Teshome Desta, Sirak Hailu, Iriya Nemes and Theopista John from the African Region of WHO.

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6.1 MODULE OVERVIEW

As malnutrition is an underlying cause of much illness, this is a very important assessment. Review the chart below to refresh on when this assessment comes in the IMCI process:

For ALL sick children – ask the caregiver about the child’s problems, check for general danger signs, assess and classify for main symptoms, then check all children for malnutrition and anaemia

Assess & classify nutrition status for all children.

Check immunization status and other problems. Assess caregiver’s health.

MODULE LEARNING OBJECTIVES

After you study this module, you will be able to:

✔ Explain why it is necessary to check all children for malnutrition and anaemia
✔ Determine weight for height/length
✔ Measure a child’s mid-upper arm circumference (MUAC)
✔ Recognize clinical signs of severe acute malnutrition
✔ Conduct an appetite test for child with acute malnutrition
✔ Recognize clinical signs of anaemia
✔ Classify malnutrition and anaemia using IMCI charts
✔ Provide ready-to-use therapeutic foods (RUTF) and counsel the caregiver on giving
✔ Distribute iron and mebendazole
✔ Counsel caregivers on home treatments
✔ Follow-up a child with malnutrition or anaemia according to IMCI guidelines
YOUR RECORDING FORM

Look at your IMCI recording form for the sick child. This section deals with this module:

**THEN CHECK FOR ACUTE MALNUTRITION AND ANAEMIA**

- Look for oedema of both feet.
- Determine WFH/L ____ Z score.
- For children 6 months or older measure MUAC ____ mm.
- Look for palmar pallor.
  - Severe palmar pallor? Some palmar pallor?

**If child has MUAC less than 115 mm or WFH/L less than -3 Z scores or oedema of both feet:**

- Is there any medical complication?
  - General danger sign?
  - Any severe classification?
  - Pneumonia with chest indrawing?
  - For a child 6 months or older offer RUTF to eat. Is the child:
    - Not able to finish or able to finish?
  - For a child less than 6 months is there a breastfeeding problem?

**MODULE ORGANIZATION**

*This module follows the IMCI process. It will first discuss IMCI for malnutrition:*

✔ CHECK ALL CHILDREN FOR MALNUTRITION AND ASSESS
✔ CLASSIFY MALNUTRITION
✔ TREAT MALNUTRITION

Then it will discuss IMCI for anaemia:

✔ CHECK ALL CHILDREN FOR ANAEMIA
✔ CLASSIFY ANAEMIA
✔ TREAT ANAEMIA

And finally you will learn how to provide follow-up care for nutrition concerns:

✔ FOLLOW-UP CARE FOR NUTRITION
BEFORE YOU BEGIN
What do you know now about managing malnutrition and anaemia?

Before you begin studying this module, quickly practice your knowledge with these multiple-choice questions.

Circle the best answer:

1. When is it necessary to check a child for malnutrition and anaemia?
   a. Check if the child appears low weight for age
   b. Check every child for malnutrition and anaemia, as sometimes problems go unnoticed
   c. Check if the caregiver tells you about a feeding problem

2. Sami has a MUAC measurement of 112 mm. What does this tell you?
   a. Sami is healthy
   b. 112 mm is low weight, so you will advise on feeding recommendations
   c. Sami is showing a sign of severe acute malnutrition

3. A child with anaemia needs:
   a. Vitamin A
   b. Iron
   c. Glucose

4. Traci shows oedema in her feet. What are your actions?
   a. Sit Traci and elevate her legs, to drain the swelling
   b. Advise Traci’s mother to cut down the salts and fats in her child’s diet
   c. Urgently refer, as this is a sign of severe malnutrition

5. What is palmar pallor?
   a. A sign of anaemia
   b. A sign of local infection
   c. A sign of severe wasting

6. What is marasmus?
   a. A common skin infection in malnourished children
   b. A type of malnutrition where the child is very thin and lacks fat
   c. A type of malnutrition where the child has a puffy moon face and thin hair

7. Which of the following is an important measurement of wasting?
   a. Weight-for-age
   b. Percentage weight gain since last visit
   c. Weight-for-height (or length)

After you finish the module, you will answer the same questions. This will demonstrate to you what you have learned during the course of the module!
6.2 OPENING CASE STUDY
Consider a typical case that you might see in your practice. Imagine the situation. This will help you start thinking about the problem of a child with malnutrition or anaemia.

■ OPENING CASE STUDY – NOAH
A young mother, Rachel, brings in her child Noah on a quiet morning in your clinic. You invite them into your clinic room. Rachel sits Noah on her lap.

Rachel looks tired, and you ask how she came to the clinic this morning. She said she had to wait for a bus to come. It took a long time. The trip to the clinic is on a rough road and it is hot, so she does not feel very well. She said she was worried about Noah getting sicker during the long trip.

Then, you examine Noah for possible signs of malnutrition or anaemia. You notice that his skin is very pale. You look at the skin of his palm and see that it is very pale. You tell Rachel that you are concerned that her son may have a nutritional deficiency. He can be treated, but she will have to learn about home care.

■ First, you gather important information in the greeting.
You praise Rachel for bringing Noah in, especially because the trip is difficult and costs her money. You tell her that you were good to bring him in, and he is in an important age of growth and development, so it is good that we make sure he is healthy.

You ask how old Noah is, and Rachel tells you he is 2 years old and 4 months. You ask what his problem is, and she tells you that he has had a cough for 3 days. You ask about the initial visit, and she says that this is their first time to the clinic for the cough. Noah weighs 12.7 kg and his temperature is 37 degrees Celsius.

■ Next, you check for general danger signs.
You ask Rachel if Noah is able to drink, and she says yes, with no trouble. He is not vomiting. He has not had convulsions. You look at Noah’s condition, and he is sitting on Rachel’s lap and kicking his legs against her skirt. He coughs and looks around the room. Does Noah have any general danger signs?

■ Then you will assess Noah for main symptoms.
You will first check for cough or difficult breathing. Rachel already identified Noah’s problem as a cough that has lasted for 3 days. You count Noah’s breaths in one minute. You count 35 breaths. You check for chest indrawing and stridor. Noah’s chest wall and abdomen move out when he breathes IN, and you hear no harsh noises.

How will you assess Noah’s cough? Noah shows no signs of pneumonia. You tell Rachel that you think Noah’s cough is a cold, and can be treated at home with a safe remedy to soothe the throat and cough. You tell her that you will teach her about this later.
Then you ask Rachel if Noah has had diarrhoea, and she says no. You move to the next symptom, fever. Noah's temperature is below the 37.5 degree point for fever. You ask if Noah has felt hot, or if he has had a fever recently. Rachel says no.

You have assessed Noah for the symptoms we have learned about so far.

**How will you complete Noah’s recording form thus far?**

**MANAGEMENT OF THE SICK CHILD AGED 2 MONTHS UP TO 5 YEARS**

<table>
<thead>
<tr>
<th>Name: Noah</th>
<th>Age: 26 mo</th>
<th>Weight (kg): 12.7</th>
<th>Temperature (°C): 37 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHECK FOR GENERAL DANGER SIGNS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NOT ABLE TO DRINK OR BREASTFEED</td>
<td>• LETHARGIC OR UNCONSCIOUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• VOMITS EVERYTHING</td>
<td>• CONVULSING NOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CONVULSIONS</td>
<td>General danger sign present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Remember to use Danger sign when selecting classifications</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING?**

- For how long? **3** Days
- Count the breaths in one minute
  - 35 breaths per minute. Fast breathing? **No**
- Look for chest indrawing
- Look and listen for stridor
- Look and listen for wheezing

**DOES THE CHILD HAVE DIARRHOEA?**

- For how long? **__** Days
- Is there blood in the stool?
- Look at the child’s general condition. Is the child:
  - Lethargic or unconscious?
  - Restless and irritable?
  - Look for sunken eyes.
  - Offer the child fluid. Is the child:
    - Not able to drink or drinking poorly?
    - Drinking eagerly, thirsty?
  - Pinch the skin of the abdomen. Does it go back:
    - Very slowly (longer than 2 seconds)?
    - Slowly?

**DOES THE CHILD HAVE FEVER?** (by history/feels hot/temperature 37.5°C or above)

- **Yes** No

Now you will learn how to check Noah for malnutrition and anaemia. You check every child for these conditions.
6.3 INTRODUCTION TO MALNUTRITION

WHY DO YOU CHECK EVERY CHILD FOR MALNUTRITION?

You have previously learned that malnutrition is a major underlying cause of death and illness in children. Even children with mild and moderate malnutrition have an increased risk of death.

You will check all sick children for signs suggesting malnutrition. This is a very important part of the clinic visit. A caregiver may bring her child to clinic because the child has an acute illness. The child may not have specific complaints that point to malnutrition or anaemia. However, a child can be malnourished, but you or the child’s family may not notice the problem.

WHY IS IT SO IMPORTANT TO IDENTIFY CHILDREN WITH MALNUTRITION?

A child with malnutrition has a higher risk of many types of disease and death. Even children with mild and moderate malnutrition have an increased risk of death. More than one out of three child deaths are linked to malnutrition.

Identifying children with malnutrition and treating them can help prevent many severe diseases and death. Some malnutrition cases can be treated at home. Severe cases need referral to hospital for special feeding, blood transfusion for severe anaemia, or specific treatment of a disease contributing to malnutrition.

You have a chance to make a real difference in a child’s health by assessing, classifying, and treating malnutrition and anaemia.

WHAT CAUSES MALNUTRITION?

There are several causes of malnutrition. They may vary from country to country.

A child whose diet lacks recommended amounts of essential vitamins, minerals, or other nutrients can develop malnutrition. The child may not be breastfeeding efficiently or eating enough of the recommended amounts of nutrients, like proteins and calories. They might not get enough specific vitamins, such as vitamin A, or minerals, such as iron.

A child who has had frequent illnesses, HIV infection, or tuberculosis can also develop acute malnutrition. The child’s appetite decreases, and the food that the child eats is not used efficiently.

Now you will read more about severe acute malnutrition.

Malnutrition develops when a child’s diet lacks amounts of essential vitamins, minerals and other nutrients. Illness and disease can often cause malnutrition.
WHAT IS SEVERE ACUTE MALNUTRITION (SAM)?

One type of malnutrition is severe acute malnutrition (SAM). Severe acute malnutrition develops when the child is not getting enough energy or protein and other nutrients from his food to meet his nutritional needs.

You will learn to assess a child for severe acute malnutrition in the next section. It is also helpful to be aware of common clinical signs of SAM.

Some clinical signs of a child with severe acute malnutrition can include:

- The child may become severely wasted (a sign of marasmus)
- The child may develop oedema (a sign of kwashiorkor)

This child is showing clinical signs of malnutrition like:

- Very thin body with reduced subcutaneous fat, especially on the arms, legs, and buttocks
- The belly may be distended
- The face may appear the same

This child is showing clinical signs of malnutrition like:

- Thin, sparse and pale (yellowish or reddish) hair that easily falls out
- Dry, scaly skin especially on the arms and legs
- A puffy or “moon” face
- Swelling of ankles and/or feet

In the next section you will learn how to assess for severe acute malnutrition using IMCI.
SELF-ASSESSMENT EXERCISE A

Answer these questions about what you have read about malnutrition and anaemia.

1. What is malnutrition?
2. Why do you check every child for malnutrition and anaemia?
3. Are the following signs common presentations of severe acute malnutrition? Answer true or false.

   1. Puffy face  TRUE  FALSE
   2. Distended abdomen  TRUE  FALSE
   3. Extremely thin body  TRUE  FALSE
   4. Oedema of the feet  TRUE  FALSE
   5. Scaly skin on legs  TRUE  FALSE
   6. Rash on belly  TRUE  FALSE
   7. Lack of fat on buttocks and arms  TRUE  FALSE
   8. Child is crying from hunger  TRUE  FALSE
   9. Thin hair that may fall out  TRUE  FALSE
6.4 ASSESS MALNUTRITION

HOW DO YOU CHECK FOR MALNUTRITION?

The assessment for malnutrition includes many important steps. This section is structured to help you learn each step in order. Open your ASSESS chart for malnutrition. What instructions do you observe?

<table>
<thead>
<tr>
<th>CHECK FOR ACUTE MALNUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOOK AND FEEL:</td>
</tr>
<tr>
<td>Look for signs of acute malnutrition</td>
</tr>
<tr>
<td>- FOR ALL CHILDREN: Look for oedema of both feet.</td>
</tr>
<tr>
<td>- FOR ALL CHILDREN: Determine WFH/L** ___ z-score.</td>
</tr>
<tr>
<td>- FOR CHILDREN 6 MONTHS AND OLDER: Measure MUAC*** mm.</td>
</tr>
</tbody>
</table>

If MUAC less than 115 mm, or WFH/L less than -3 z-score, or oedema of both feet:

- FOR ALL CHILDREN check if there is a medical complication:
  - Any general danger sign
  - Any severe classification
  - Pneumonia with chest indrawing
- ADDITIONALLY FOR CHILDREN UP TO 6 MONTHS:
  - Does the child have a breastfeeding problem?***
- ADDITIONALLY FOR CHILDREN UP TO 6 MONTHS:
  - Offer the child RUTF**** to finish within 30 minutes
  - Does the child finish all the RUTF or not?

WHY ARE THERE SOME AGE DIFFERENCES IN THE ASSESS CHART?

Severely malnourished infants under 6 months of age need special care. They should always be treated in inpatient care until full recovery. Remember that children under 6 months are assessed differently than children 6 months and older. For example, MUAC cannot be used for children less than 6 months.

NOW YOU WILL LEARN HOW TO ASSESS:

You will now learn more about these instructions. We will think about the malnutrition assessment in two parts.

First, you will assess for severe acute malnutrition (SAM):

- PART 1: ASSESS FOR SAM

Second, if there is SAM, you will assess for complications:

- PART 2: WHEN SAM, ASSESS FOR COMPLICATIONS
PART 1: ASSESS FOR SAM

STEP 1: LOOK AND FEEL FOR OEDEMA OF BOTH FEET

The first step when assessing for SAM is looking and feeling for oedema of both feet.

WHAT IS OEDEMA?

Oedema is when an unusually large amount of fluid gathers in the child’s tissues. The tissues become filled with the fluid and look swollen or puffed up. If a child has oedema of both feet they should be referred to inpatient care.

HOW WILL YOU ASSESS FOR OEDEMA?

LOOK and FEEL to determine if the child has oedema of both feet. Using your thumbs, press the topside of both feet simultaneously for 3 seconds on the top side of each foot. The child has oedema if a dent remains in the child’s foot when you lift your thumb. See the photo below as an example:

REMEMBER! Oedema of both feet means severe acute malnutrition. ALL CHILDREN WITH OEDEMA OF BOTH FEET SHOULD BE REFERRED TO A HOSPITAL.
**STEP 2: MEASURE WEIGHT-FOR-HEIGHT OR LENGTH**

By comparing a child’s weight to his/her height or length, you can measure how thin the child is. If the weight-for-height or length is low, the child is **wasted**. This is an important measurement of acute malnutrition. You have also learned wasting is an important sign of marasmus.

**WHY USE WEIGHT-FOR-HEIGHT?**

You might be familiar with other ways to measure a child’s growth, like weight-for-age, or height-for-age. These measurements do not indicate acute malnutrition in the same way that **weight-for-height** does. You will learn about these other ways to measure growth in the WELL CHILD CARE module.

**WHAT IS THE DIFFERENCE BETWEEN LENGTH AND HEIGHT?**

There is an important difference between height and length for you to remember. They are measured differently for certain age groups.

- **LENGTH** is measured when the child is lying down. This is used for **children below 2 years of age or if the child is too weak to stand**.
- **HEIGHT** is measured when the child is standing upright. This is used for all other children.

**NOTE:** the height of a child is 0.7 cm shorter than length. Therefore in case you measure a child 2 years or older using length instead of height, subtract 0.7 cm from the measurement.

**HOW WILL YOU MEASURE A CHILD’S LENGTH?**

Remember that length is used for children under 2 years, or those too weak to stand. One assistant should hold the child’s head over the ears and with straight arms. The measurer hold one hand on the child’s knees keeping the legs straight and the other on the foot-place to read the length. The child should lie flat on the board.

Once you have measured the child’s length, you will use the weight and length to calculate a child’s Z-score.
HOW WILL YOU MEASURE A CHILD’S HEIGHT?
Remember that height is used for children 2 years and older. The assistant should hold the child’s knees to keep the legs straight with one hand, and the other hand on the shins to keep the heels against the back and base of the board. The measurer should hold one hand the child’s chin and the other on the head-piece to read the height. The child’s eyes should the in horizontal level and the body flat against the board.

HOW DO YOU CALCULATE A CHILD’S Z-SCORE?
Once you have the child’s weight and height/length, you will calculate their Z-score. This is basically a score comparing the weight-for-height/length of children across the world. Children with low Z-scores have low weight-for-height/length. The Z-score does not require any math. You will use an easy chart, which you can refer to your IMCI Chart Booklet.

1. THERE ARE SEPARATE CHARTS FOR HEIGHT (2 to 5 years) and LENGTH (birth to 2 years)
2. DETERMINE WHICH CHART TO USE BASED ON THE CHILD’S SEX
It is important to note that there are two separate charts for females and males. They cannot be used interchangeably.

3. MARK THE INTERSECTION OF THE CHILD’S WEIGHT AND HEIGHT
Next you will find the intersection of the weight and height. The numbers for weight (kg) run up the chart, and guiding lines run across the chart. The numbers for height (cm) are along the bottom of the chart, and the guiding lines run up the chart.

Let us review an example. Ben is 10.5 kg and 82 cm. See how we find the intersection:

1. Locate the child’s weight: 10.5 kg
2. Locate child’s height: 82 cm
4. USE THE INTERSECTION POINT TO FIND THE Z-SCORE

Think about the Z-scores like zones between two lines. Look at the figure below. You should be most worried about any weight-for-height intersection points that fall:

✔ Between the -2Z and -3Z lines, like the circle below. This is moderate malnutrition.

✔ Below the -3Z line, like the star below. This is severe malnutrition.

WHAT DO YOU DO AFTER CALCULATING A CHILD’S Z-SCORE?

Children above the -2Z score are not malnourished. However you should routinely check children because their nutrition status can change rapidly.

If children are between -2Z and -3Z, or below -3Z, you will use this information to classify their acute malnutrition. You will learn this in the next section.

REMEMBER! WFH/L below -3Z means severe acute malnutrition
SELF-ASSESSMENT EXERCISE B

Plot weight and height on the chart. Use a dot that is very clear. Determine the Z score.

1. 76 cm, 9 kg
2. 80 cm, 7.5 kg
3. 90 cm, 11.2 kg
4. 93 cm, 11 kg
5. 85 cm, 12 kg
STEP 3: MEASURE MUAC (only for children 6–59 months)

WHAT IS MUAC?
The measurement around the middle of a child’s upper arm is an important indicator of acute malnutrition in a child. This is called mid-upper arm circumference (MUAC). The MUAC strip is a flexible measuring tape that measures in millimetres (mm).

MUAC can only be used for children 6–59 months.

HOW DO YOU READ THE MUAC STRIP?
Examine your own MUAC strip, and refer to the picture below. The first thing you should note about your MUAC strip is that there are three different colours: green, yellow, and red to note danger of child’s MUAC.

There are two important pieces of the MUAC strip you should note in the picture above. The first is the slit where you will insert the MUAC strip. The next is the window where you will read the child’s MUAC in mm.

Children with a MUAC less than 115 mm have severe acute malnutrition. This measurement is red on the MUAC strip. These children need special treatment.

HOW DO YOU MEASURE THE CHILD’S MUAC?
The steps and the figure below explain how to measure the child’s MUAC.

- Find the mid-point of the child’s upper arm between the shoulder and elbow.
- Use MUAC tape to mark the midpoint on the child’s arm.
- Hold the large end of the strap against the arm at the midpoint of the arm.
- Put the other end of the strap around the child’s arm. Thread the end up through the second small slit in the strap. The end will come from behind.
- Pull both ends until the strap fits closely. It should not be so tight that it makes folds in the skin. It should also not be too loose.
- Gently press the window. At the marks note the measurement and colour.

REMEMBER! MUAC below 115 mm (RED) means severe acute malnutrition
SIGNS OF SEVERE ACUTE MALNUTRITION: A REVIEW

BELOW ARE THE SIGNS OF A CHILD LESS THAN 6 MONTHS WITH SAM:
• Infant has oedema of both feet
• Weight-for-length is less than 3 z-score

BELOW ARE THE SIGNS OF A CHILD 6 MONTHS AND OLDER WITH SAM:
• Child has oedema of both feet
• Weight-for-height/length is less than 3 z-score
• MUAC is 115 mm or below

WHAT DO YOU DO IF ANY OF THESE SIGNS ARE PRESENT?
If any signs are present, you will look for other clinical complications. You will learn about these next.

WHAT IF NO SIGNS OF SAM ARE PRESENT?
If none of the three signs above are present, you will move to CLASSIFY the child’s nutrition status using your IMCI charts.

REMEMBER! IF ANY OF THE SIGNS OF SEVERE ACUTE MALNUTRITION ARE PRESENT, YOU WILL LOOK FOR OTHER CLINICAL COMPLICATIONS.

SELF-ASSESSMENT EXERCISE C
Exercises on signs of severe acute malnutrition.

1. What is the child’s Z-score? Tick the correct box.

<table>
<thead>
<tr>
<th>Child is:</th>
<th>Below -3</th>
<th>Between -3 and -2</th>
<th>Between -2 and -1</th>
<th>Between -1 and 0</th>
<th>Between 0 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Boy, 18 months, length 75 cm, weight 8.5 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Boy, 30 months, height 118 cm, weight 22 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Girl, 11 months, length 70 cm, weight 6 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Girl, 27 months, weight 11 kg, height 95 cm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Boy, 7 months, length 60 cm, weight 5 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Girl 32 months, length 111 cm, weight 14.5 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Boy, 26 months, weight 14.5 kg, height 113 cm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Girl, 32 months, height 111 cm, weight 16.5 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Girl, 20 months, length 100 cm, weight 14.5 kg</td>
<td></td>
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</tr>
</tbody>
</table>
2. Which of the children above are moderately malnourished based on their Z-scores?

____________________________________________________________________

3. Which of the children above have severe acute malnutrition based on their Z-scores?

____________________________________________________________________

4. Do the children below have signs of severe acute malnutrition? Tick YES or NO. If NO, answer why not.

<table>
<thead>
<tr>
<th>Child is:</th>
<th>TICK: Signs of SAM</th>
<th>WRITE: No signs of SAM</th>
<th>If no, why not?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Child’s MUAC is 112 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Child has Z-score between -2 and -3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Child has a swollen right foot and is very skinny</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Child is too weak to stand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Child’s MUAC is 113.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Child has oedema of both feet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. MUAC is 120 mm and child is irritable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. What clinical sign does this picture show?
PART 2: WHEN SAM, ASSESS FOR COMPLICATIONS

IF CHILD IS UNDER 6 MONTHS:

If the child is under 6 months, you will do two steps:

1. **Check the child for medical complications.** These are discussed below.
2. **Check the child for a breastfeeding or feeding problem.** Refer to the sick young infant assessment chart for FEEDING PROBLEM.

WHEN WILL YOU CHECK A CHILD FOR CLINICAL COMPLICATIONS?

If the child has the following complications, it must be noted for their assessment:

- General danger sign or sign of severe illness, done at the beginning of ASSESS
- Any severe (red) classification
- Pneumonia with chest indrawing

IF CHILD IS 6 MONTHS AND OLDER:

If the child is 6 months and older, you will do two steps:

1. **Check the child for medical complications, as was described above.**
2. **Conduct an appetite test with RUTF.**

WHEN WILL YOU CONDUCT AN APPETITE TEST?

Review your ASSESS chart again. You just learned how to check children with signs of SAM for other clinical complications. Additionally, if these children are 6 months or older, you will also need to conduct an appetite test.

If a child is 6 months or older, and shows signs of severe acute malnutrition, you should conduct an appetite test. You will assess appetite by giving the child some Ready-to-use Therapeutic Food (RUTF) to try at the site.

HOW WILL YOU PREPARE TO GIVE A CHILD AN APPETITE TEST?

A child may refuse to eat RUTF because it is unfamiliar and because the child is in a strange environment. In this case, the caregiver should move to a quiet, private area and slowly encourage the child to take the RUTF. The health worker will also need to move to this area, because you must observe the child eating the RUTF before classifying.
HOW WILL YOU CONDUCT AN APPETITE TEST?
To carry out the appetite test, it is important to follow the steps listed below:

1. The appetite test should be conducted in a separate quiet area.
2. Explain to the caregiver the purpose of the appetite test. Explain how it will be carried out.
3. The caregiver should wash her hands.
4. The caregiver should sit comfortably with the child on his lap. She should offer the RUTF from the packet, or put a small amount on her finger and give it to the child.
5. The caregiver should offer the child the RUTF gently, encouraging all the time. If the child refuses, then the caregiver should continue to quietly encourage the child. She can take time for the test. The child must not be forced to take the RUTF.
6. The child needs to be given plenty of water from a cup as he/she is taking the RUTF.

HOW DOES A CHILD ‘PASS’ THE APPETITE TEST?
To pass the test, the child must eat the RUTF quantities in table below within 30 minutes.

<table>
<thead>
<tr>
<th>Weight of the child</th>
<th>Minimum RUTF amount child should eat within 30 minutes to pass the appetite test</th>
<th>Number of sachets the child should consume willingly during the test (sachets = 500 Kcal, or 92 g)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4 kg</td>
<td>1/8</td>
<td>1/4</td>
</tr>
<tr>
<td>4 up to 6.9 kg</td>
<td>1/4</td>
<td>1/3</td>
</tr>
<tr>
<td>7 up to 9.9 kg</td>
<td>1/3</td>
<td>1/2</td>
</tr>
<tr>
<td>10 up to 14.9 kg</td>
<td>1/2</td>
<td>3/4</td>
</tr>
<tr>
<td>15 kg and above</td>
<td>3/4</td>
<td>1 or above</td>
</tr>
</tbody>
</table>

* Note: quantities should be adjusted if RUTF is available in containers or in packaging with different weights.

ARE THERE ANY TIMES WHEN AN APPETITE TEST SHOULD NOT BE CONDUCTED?
There are some scenarios where the child is showing signs of severe malnutrition but does not need an appetite test. If a child has any general danger signs, the appetite test is not done. The appetite test is also not done in children who have pneumonia, persistent diarrhoea, dysentery, measles, or malaria. If RUTF is not available for an appetite test, refer.
SELF-ASSESSMENT EXERCISE D

Complete the exercises below on steps you will take with children who have signs of SAM.

1. What are the three signs of severe acute malnutrition?
   1. 
   2. 
   3. 

2. When evaluating a SAM child for hypothermia, how will you evaluate if the child has a low body temperature?
   
   

3. Are the following true or false statements? Circle your answer. If false, write the correct statement.
   a. Aram is 5 months old, and has a z-score of less than -3.
      You will immediately begin an appetite test. TRUE FALSE
   b. A child must consume the RUTF within 30 minutes for an appetite test, so the caregiver should rush the child to finish quickly. TRUE FALSE
   c. Masha’s blood sugar level is 52.5 mg/dL. She is hypoglycaemic. TRUE FALSE
   d. Shock is an important clinical complication of SAM to evaluate for. TRUE FALSE

4. Boniface weighs 9.9 kg. What is the minimum amount of the RUTF sachet he should consume to pass an appetite test?
How will you assess Noah for acute malnutrition?

You have completed Noah's IMCI assessment up to malnutrition. You know that you need to check all children for these conditions. First you will check Noah for the three signs of severe acute malnutrition. You check Noah for oedema of both feet. You see no swelling. Noah's weight is **12.7 kg**, which you measured at the beginning of the visit using a solar scale. He was able to stand on this himself for measurement. Noah's height is **104 cm**. What is Noah's Z-score?

You measure his MUAC, which is 116 cm. While you measure his MUAC, you encourage Rachel to keep him calm on her lap. Then you explain to Rachel that you need to measure his height. You ask for her help in doing so, and she agrees. You explain each step as you go.

Does Noah have any signs of severe acute malnutrition?

Let us review the results of checking Noah for signs of severe acute malnutrition:

1. There is **no oedema** of both feet
2. WFH z-score is **-3Z**: this qualifies as SAM
3. MUAC is **116 cm**: this is above the 115 cm required for SAM

Noah is showing at least one sign of SAM because he has a WFH Z-score under -3Z. Now you will need to evaluate him for medical complications. As he is over 6 months of age, you will also conduct an appetite test.

How will you check Noah for other medical complications?

You check Noah for common medical complications in children with malnutrition, including shock, hypothermia, hypoglycemia, and infections. Earlier in your assessment you classified Noah's cough as COUGH OR COLD, and not an acute respiratory infection like pneumonia. You do not see any medical complications.

How will you conduct an appetite test for Noah?

Noah weighs 12.7 kg, so here is the amount of minimum RUTF he must eat during the appetite test. You will give him about 30 minutes.

<table>
<thead>
<tr>
<th>Weight of the child</th>
<th>Number of sachets the child should consume willingly during the test (sachets = 500 Kcal, or 92 g)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 up to 14.9 kg</td>
<td>Minimum 1/2</td>
</tr>
</tbody>
</table>

You explain to Rachel that you want to see how strong Noah's appetite is. Your clinical space is quiet, so you have Rachel and Noah sit on the side. Rachel washes her hands. You explain to Rachel how to give the RUTF directly from the packet, and how to encourage Noah. You emphasize that she should not force Noah. You also provide a cup of water for her to give Noah. He slowly takes the RUTF and about 20 minutes into the test, he has eaten over ½ of the sachet. You tell Rachel that he has done a good job eating, and he does not need to anymore.

Now you will learn how to classify Noah based on his signs.
### 6.5 CLASSIFY MALNUTRITION

**HOW DO YOU CLASSIFY SIGNS OF MALNUTRITION?**

After you complete the assessment for malnutrition, you will classify. There are FOUR classifications for malnutrition:

1. **COMPLICATED SEVERE ACUTE MALNUTRITION**
2. **UNCOMPLICATED SEVERE ACUTE MALNUTRITION**
3. **MODERATE ACUTE MALNUTRITION**
4. **NO MALNUTRITION**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Action</th>
</tr>
</thead>
</table>
| Oedema of both feet, OR WFH/L less than -3 Z score, OR MUAC less than 115 mm (6 months or older) AND any one of the following: | **Pink:** COMPLICATED SEVERE ACUTE MALNUTRITION  
- Medical complication present, OR  
- Breastfeeding problem (up to 6 months), OR  
- Not able to finish the noted amount of RUTF (6 months and older) | Give first dose appropriate antibiotic  
- Treat the child to prevent low blood sugar  
- Keep the child warm  
- Refer URGENTLY to hospital |
| MUAC less than 115 mm, OR WFH/L less than -3 Z score AND No medical complication  
- No breastfeeding problem (under 6 months)  
- Able to finish the noted amount of RUTF (6 months and older) | **Yellow:** UNCOMPLICATED SEVERE ACUTE MALNUTRITION | Give oral antibiotics for 5 days.  
- Give ready-to-use therapeutic food for a child aged 6 months or more  
- Re-establish effective breast feeding for a child aged less than 6 months  
- Counsel the mother on how to feed the child.  
- Assess for possible TB infection  
- Advise mother when to return immediately  
- Follow up in 7 days |
| MUAC between 115 up to 125 mm, OR WFH/L between -3 and -2 Z scores and no oedema of both feet | **Yellow:** MODERATE ACUTE MALNUTRITION | Assess the child’s feeding and counsel the mother on the feeding recommendations.  
- If feeding problem, follow up in 7 days  
- Assess for possible TB infection  
- Advise mother when to return immediately  
- Follow-up in 30 days |
| MUAC over 125 mm, OR WFH/L Z scores are -2 or more and no oedema of both feet | **Green:** NO ACUTE MALNUTRITION | If child is less than 2 years old, assess the child’s feeding and counsel the mother on feeding according to the feeding recommendations  
- If feeding problem, follow-up in 7 days |

Now you will read about each of these classifications.
COMPLICATED ACUTE SEVERE MALNUTRITION (RED)

Remember that signs of severe acute malnutrition that you have assessed for include MUAC less than 115 mm, weight-for-height lower than -3 Z, or include oedema of both feet.

The child is classified as COMPLICATED SEVERE ACUTE MALNUTRITION when they have severe acute malnutrition and one of the following complications:

- **At least one medical complication**, including any general danger sign, any severe classification, or pneumonia with chest indrawing
- **No appetite**, determined failed appetite test in a child 6 months or older
- **A feeding problem** in children under 6 months according to the FEEDING PROBLEM classification for the young infant

**What are your actions?**

Children classified as having SEVERE COMPLICATED MALNUTRITION are at high risk of death from pneumonia, diarrhoea, measles, and other severe diseases. These children need urgent referral to hospital where their treatment can be carefully monitored. They may need special feeding, antibiotics or blood transfusions.

Before the child leaves for hospital you should give:

- The first dose of amoxicillin
- 50 ml of 10% glucose or sucrose solution; if you do not have solution this is one rounded teaspoon of sugar in three tablespoons of water
- Keep the child warm

UNCOMPLICATED SEVERE ACUTE MALNUTRITION (YELLOW)

If the child has at least one sign of severe acute malnutrition, but passed the appetite test or does not other signs of complication, they are classified as UNCOMPLICATED SEVERE ACUTE MALNUTRITION.

**What are your actions?**

These children need urgent treatment-based RUTF, deworming, and oral antibiotics. These children are at risk of death from serious diseases. Check if the child is at high risk of HIV infection, whether s/he has been vaccinated for measles, and test for malaria.

You will learn how to provide treatment-based RUTF later in this module. You will also learn how to counsel the caregiver on giving RUTF. A child with SEVERE UNCOMPLICATED MALNUTRITION should return for follow-up after 1 week.
MODERATE ACUTE MALNUTRITION (YELLOW)
If the child’s weight-for-age is between -3 and -2 Z-score or MUAC between 115 and 125, classify as MODERATE ACUTE MALNUTRITION.

What are your actions?
A child classified as having MODERATE ACUTE MALNUTRITION has a higher risk of severe disease. Assess the child’s feeding and counsel the caregiver about feeding her child according to the recommendations in the FOOD box on the COUNSEL chart and in the WELL CHILD CARE module. You should also consider screening the child for HIV and TB and same medications as above.

If the child has a feeding problem, they should follow-up in 5 days. If there is no feeding problem, the child should follow-up in 30 days.

NO ACUTE MALNUTRITION (GREEN)
If the child has a weight-for-age over -2 Z-scores, and has no other signs of malnutrition, classify as NO ACUTE MALNUTRITION. If the child is less than 2 years of age, assess the child’s feeding. Children less than 2 years of age have a higher risk of feeding problems and malnutrition than older children. Counsel the caregiver about feeding her child according to the recommendations in the FOOD box on the COUNSEL chart and in the WELL CHILD CARE module.

How will you classify Noah’s malnutrition?
Noah shows one sign of SAM, a WFH Z score under -3Z. He does not have oedema or any clear medical complications. He passed his appetite test. You classify him as UNCOMPLICATED SEVERE ACUTE MALNUTRITION (yellow).

What treatments are identified for Noah?
Noah needs immediate treatment, as he is at risk of death from serious diseases given his nutrition status. You identify his treatments for this classification as:

✔ Treatment-based RUTF
✔ Oral antibiotics
✔ Deworming

Now you will learn how to provide these treatments to Noah.
**SELF-ASSESSMENT EXERCISE E**

**Practice classifying malnutrition.**

1. How will you classify the following children? Tick the appropriate box.

<table>
<thead>
<tr>
<th></th>
<th>Complicated severe acute malnutrition</th>
<th>Uncomplicated severe acute malnutrition</th>
<th>Moderate acute malnutrition</th>
<th>No acute malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Child has MUAC of 112 mm and no complications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Child has WFH z-score less than -3 and failed the appetite test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Child has MUAC of 112 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Child has MUAC of 117 mm and no oedema</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Child’s WFH z-score is between -1 and -2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Child has WFH z-score between -3 and -2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Child has MUAC of 113 mm and is showing signs of shock</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Child is less than 6 months, has lost weight and not breastfeeding effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. You classify a child as **UNCOMPPLICATED SEVERE ACUTE MALNUTRITION**. What are the primary treatments you have identified for this classification?

3. When will you advise this child to return for follow-up?

---

30
### 6.6 TREAT MALNUTRITION

**WHAT TREATMENTS ARE IDENTIFIED FOR MALNUTRITION?**

Review your classification table for malnutrition. It identifies the following treatments:

<table>
<thead>
<tr>
<th>Pink: COMPLICATED SEVERE ACUTE MALNUTRITION</th>
<th>Green: NO ACUTE MALNUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Give first dose appropriate antibiotic</td>
<td>■ If child is less than 2 years old, assess the child's feeding and counsel the mother on feeding according to the feeding recommendations.</td>
</tr>
<tr>
<td>■ Treat the child to prevent low blood sugar</td>
<td>○ If feeding problem, follow-up in 7 days</td>
</tr>
<tr>
<td>■ Keep the child warm</td>
<td></td>
</tr>
<tr>
<td>■ Refer URGENTLY to hospital</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yellow: UNCOMPICLICATED SEVERE ACUTE MALNUTRITION</th>
<th>Yellow: MODERATE ACUTE MALNUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Give oral antibiotics for 5 days.</td>
<td>■ Assess the child's feeding and counsel the mother on the feeding recommendations.</td>
</tr>
<tr>
<td>■ Give ready-to-use therapeutic food for a child aged 6 months or more</td>
<td>■ If feeding problem, follow up in 7 days</td>
</tr>
<tr>
<td>■ Re-establish effective breast feeding for a child aged less than 6 months</td>
<td>■ Assess for possible TB infection.</td>
</tr>
<tr>
<td>■ Counsel the mother on how to feed the child.</td>
<td>■ Advise mother when to return immediately</td>
</tr>
<tr>
<td>■ Assess for possible TB infection.</td>
<td>■ Follow up in 30 days.</td>
</tr>
<tr>
<td>■ Advise mother when to return immediately</td>
<td></td>
</tr>
<tr>
<td>■ Follow up in 7 days.</td>
<td></td>
</tr>
</tbody>
</table>

---

* MUAC is Mid-Upper Arm Circumference measured using MUAC tape in a child 6 months or older.
**WFH/L is Weight-for-height/Weight-for-Length is determined using the WHO growth standards charts.
***Refer to the FEEDING PROBLEM classification (yellow) for the sick young infant.
****RUTF is Ready-to-Use Therapeutic Food for therapeutic feeding and conducting the appetite test for children with severe acute malnutrition.
You have already learned about several of the treatments listed in this chart:

➞ Give all children **oral antibiotics** for 5 days (Module 3)

➞ **Treat for low blood sugar** if child is being referred (Module 1)

**The treatments that you will read about now include:**

➞ Give RUTF to children with **UNCOMPLICATED SEVERE ACUTE MALNUTRITION** (yellow)

➞ How to manage children with severe acute malnutrition **AND** dehydration, as dehydration should be managed differently when the child has malnutrition (also refer to Module 4)

**Counselling on feeding problems is discussed in module 8, care of the well child**

**HOW WILL YOU GIVE RUTF?**

A child classified as **UNCOMPLICATED SEVERE ACUTE MALNUTRITION** must receive RUTF. The caregivers will provide RUTF. RUTF is the only food that thin children need for their recovery. If the child is young and still breastfeeding, this should continue.

**It is important to remember that RUTF is a therapeutic treatment and must be given in correct quantity.** Quantities of RUTF are given according to the child’s weight, in the table:

<table>
<thead>
<tr>
<th>Weight of the child (kg)</th>
<th>RUTF paste</th>
<th>RUTF Sachets* (500 Kcal sachets, or 92 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>grams per day</td>
<td>grams per week</td>
</tr>
<tr>
<td>4.0–4.9</td>
<td>190</td>
<td>1300</td>
</tr>
<tr>
<td>5.0–6.9</td>
<td>230</td>
<td>1600</td>
</tr>
<tr>
<td>7.0–8.4</td>
<td>280</td>
<td>1900</td>
</tr>
<tr>
<td>8.5–9.4</td>
<td>320</td>
<td>2300</td>
</tr>
<tr>
<td>9.5–10.4</td>
<td>370</td>
<td>2600</td>
</tr>
<tr>
<td>10.5–14.9</td>
<td>400</td>
<td>2800</td>
</tr>
<tr>
<td>15.0–19.9</td>
<td>450</td>
<td>3200</td>
</tr>
<tr>
<td>20.0–29.9</td>
<td>550</td>
<td>3900</td>
</tr>
</tbody>
</table>

*Note: quantities should be adjusted if available in containers or in packaging with different weights.*

**HOW WILL YOU COUNSEL THE CAREGIVER ABOUT GIVING RUTF?**

You will start a child immediately on RUTF, and the caregivers will continue the treatment. There are several key messages for the caregiver about RUTF:

- Wash hands before giving RUTF
- Sit with child on the lap and gently offer the RUTF
- Encourage the child to eat the RUTF without forced feeding
• Give small, regular meals of RUTF, and encourage child to eat often (5-6 meals per day)
• If still breastfeeding, should continue by offering breast milk first before every RUTF feed
• Offer plenty of clean water, to drink from a cup, when the child is eating the RUTF

WHEN SHOULD THE CHILD RECEIVING RUTF RETURN FOR FOLLOW-UP?
A child with UNCOMPLICATED SEVERE MALNUTRITION should return for follow-up after 1 week. Advise the caregiver to return immediately if the child does not eat RUTF.

WHEN SHOULD THE CHILD STOP RUTF?
RUTF should be given until the weight-for-height is above -2 z scores for 2 consecutive visits OR there is 15% weight gain. The child should be well and alert.
If the child presents with oedema, he will lose weight as the swelling goes down and he begins to improve. RUTF should not be stopped until the child has achieved weight gain as described above, AND the oedema has disappeared and been gone for at least two weeks.

RUTF is stopped after the child gains appropriate weight, AND there have been no signs of oedema for at least 2 weeks.
SELF-ASSESSMENT EXERCISE F

Answer the following questions about RUTF treatment.

1. How much RUTF should the following children be given for a week’s supply?
   a. 3.7 kg, paste available
   b. 16.7 kg, sachets available
   c. 7.8 kg, sachets available
   d. 11.6 kg, paste available

2. When should the child receiving RUTF follow-up?

3. List three important counselling messages about providing RUTF at home:
   1. 
   2. 
   3. 

4. List three checking questions to see if the caregiver understands how to provide home treatments:
   1. 
   2. 
   3. 

5. Should the following children stop RUTF? Tick your answer.

   CONTINUE RUTF  STOP RUTF
   a. Tsepi (boy) now weighs 13.5 kg, and is 96 cm in height. Last visit he weighed 13 kg.  
   b. Rakim’s weight has changed from 20.5 kg to 23 kg.  
   c. Angie (girl) weighs 15.5 kg and is 109 cm in height. Last visit she weighed 14.5.  
   d. Sheena’s weight has changed from 32.5 kg to 38.0 kg.  
   e. Maria (girl) now weighs 17.2 kg and is 116 cm in height. Last visit she weighed 17.3 kg.
HOW YOU MANAGE CHILDREN WITH SAM AND DEHYDRATION?

In Module 4 you have learned to assess for dehydration. If a child has severe acute malnutrition and signs of dehydration, they must be managed differently. There are two classifications for dehydration. Let us revisit these and the actions to be taken.

SEVERE DEHYDRATION

All children with severe dehydration should be urgently referred.

SOME DEHYDRATION

If the child has some dehydration they can be treated in the health facility. **Children with SAM and some dehydration should not be treated with normal ORS.** This is because normal ORS has high sodium and low potassium content, which is not suitable for severely malnourished children.

Treating dehydration in children with SAM

**PREFERRED: ReSoMal**

If available, give ReSoMal 5 ml/kg every 30 minutes the first 2 hours, and 5-10 ml/kg per hour for the next 4-10 hours on alternate hours with RUTF.

**IF ReSoMal NOT AVAILABLE: ½ STRENGTH ORS**

If ReSoMal is not available prepare half strength ORS with concentrated electrolyte/mineral solution in same doses as ReSoMal.

**NEITHER AVAILABLE: REFER**

If ReSoMal is not available and half strength ORS cannot be prepared, urgently refer to the nearest hospital.

HOW LONG WILL YOU GIVE RESOMAL OR HALF STRENGTH ORS?

A child with SAM and some dehydration cannot be sent home before improvement is seen. The child should be assessed every 30 minutes for the first 2 hours and every hour for the next 4–10 hours.

If the child improves the caregiver can be sent home with ReSoMal/half strength ORS for two days. She should give 50–100 ml after each loose stool. Tell the caregiver to return urgently if the child is not improving and to come back for follow-up after the two days.

If the child is deteriorating or not improving she/he should urgently be referred.

You have completed assessing, classifying, and treating malnutrition. Now you will learn about the IMCI process for anemia.
6.7 ASSESS & CLASSIFY ANAEMIA

WHAT IS ANAEMIA?

Anaemia is a reduced number of red cells or a reduced amount of haemoglobin in each red cell. Iron deficiency anaemia is considered to be the most common cause of anaemia, but other causes include deficiencies in folate, Vitamin B12, and Vitamin A. Besides iron deficiency, a child can also develop anaemia as a result of:

✓ Infections
✓ Parasites, such as hookworm or whipworm, that can cause blood loss from the gut
✓ Malaria, which can destroy red cells rapidly. Children can develop anaemia if they have repeated episodes of malaria or if malaria was inadequately treated. The anaemia may develop slowly. Often, anaemia in these children is due to both malnutrition and malaria.

HOW DO YOU CHECK FOR ANAEMIA?

Open your ASSESS chart for anaemia. What instructions do you observe?

<table>
<thead>
<tr>
<th>Check for anaemia</th>
<th>Do a malaria test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decide Malaria Risk: High or Low</td>
<td></td>
</tr>
<tr>
<td>✓ Look for palmar pallor. Is it:</td>
<td></td>
</tr>
<tr>
<td>o Severe palmar pallor?</td>
<td></td>
</tr>
<tr>
<td>o Some palmar pallor?</td>
<td></td>
</tr>
<tr>
<td>✓ If high malaria risk and some pallor present</td>
<td></td>
</tr>
</tbody>
</table>

HOW WILL YOU DETERMINE MALARIA RISK?

Before you begin, determine is the malaria risk is high or low. Remember that you learned about high and low risk malaria areas in the beginning of Module 5 on Fever. It is also important to remember that a child can live in a low risk area, but you need to check if the child has travelled to a high risk area. You will do a malaria test if the child has high malaria risk and shows sign of some pallor.

HOW WILL YOU LOOK FOR PALMAR PALLOR?

Pallor is unusual paleness of the skin, and is a sign of anaemia. Palmar pallor means it is identified in the palm of the hand.

LOOK at the skin of the child’s palm. Hold the child’s palm open by grasping it gently from the side. Do not stretch the fingers backwards. This may cause pallor by blocking the blood supply. Compare the colour of the child’s palm with your own palm and with the palms of other children.

The child has some palmar pallor if the skin of the child’s palm is pale. The child has severe palmar pallor if the skin of the palm is very pale or so pale that it looks white. A good example of severe palmar pallor is in the picture to the right.
HOW DO YOU CLASSIFY SIGNS OF ANAEMIA?

What do you observe about the classification chart for anaemia? You will see how palmar pallor is the important sign. There are 3 classifications for anaemia. These are:

1. SEVERE ANAEMIA
2. ANAEMIA
3. NO ANAEMIA

<table>
<thead>
<tr>
<th>Severe palmar pallor</th>
<th>Pink: SEVERE ANAEMIA</th>
<th>Refer URGENTLY to hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Give iron**</td>
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<tr>
<td></td>
<td></td>
<td>Give oral antimalarial if malaria test positive*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Give mebendazole if child is 2 years or older and has not had a dose in the previous 6 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advise mother when to return immediately</td>
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<td></td>
<td></td>
<td>Follow-up in 14 days</td>
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</tbody>
</table>

<table>
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<tr>
<th>Some pallor</th>
<th>Yellow: ANAEMIA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Give iron**</td>
</tr>
<tr>
<td></td>
<td>Give oral antimalarial if malaria test positive*</td>
</tr>
<tr>
<td></td>
<td>Give mebendazole if child is 2 years or older and has not had a dose in the previous 6 months</td>
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<tr>
<td></td>
<td>Advise mother when to return immediately</td>
</tr>
<tr>
<td></td>
<td>Follow-up in 14 days</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>No palmar pallor</th>
<th>Green: NO ANAEMIA</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>If child is less than 2 years old, assess the child's feeding and counsel the mother according to the feeding recommendations</td>
</tr>
<tr>
<td></td>
<td>If feeding problem, follow-up in 5 days</td>
</tr>
</tbody>
</table>

SEVERE ANAEMIA (RED)

A child with severe palmar pallor has severe anaemia and should be referred urgently.

ANAEMIA (YELLOW)

A child with some palmar pallor should be classified as having ANAEMIA. The child should be given iron. **Asses for malaria with in all children with some palmar pallor.**

In addition, the anaemia may be due to malaria, hookworm, or whipworm. If the child’s malaria test is positive, you should give oral antimalarials. Hookworm and whipworm infections contribute to anaemia because the loss of blood from the gut results in iron deficiency. Give the child mebendazole only if there is hookworm or whipworm in the area. Only give mebendazole if the child with anaemia is 1 year or older and has not had a dose of mebendazole in the previous 6 months. You can review the dosage in your TREAT charts. You will also learn more about deworming in the WELL CHILD CARE module.

NO ANAEMIA (GREEN)

If the child has no palmar pallor, classify the child as having no anaemia and not very low weight. Children less than 2 years of age have a higher risk of feeding problems and malnutrition than older children do. If the child is less than 2 years of age, assess the child’s feeding.
Watch “Assess for malnutrition, anaemia, & ear problems” (disc 2)
This video clip reviews all steps of assessing for malnutrition and anaemia. You will return to watch the ‘ear problems’ portion.
NOTE: video also covers feeding problems, which you will learn about in the WELL CHILD CARE module.

**SELF-ASSESSMENT EXERCISE G**

Answer the following questions about malnutrition and anaemia.

1. Match the following key terms with their definitions. These are important concepts for nutrition.

   MATCH THIS TERM … … WITH A DEFINITION

   **Anaemia**  
   A food product that is used for the safe therapeutic feeding of SAM children.

   **Oedema**  
   A sign that is identified by looking at a child’s palm.

   **Pallor**  
   A reduced number of red cells or a reduced amount of haemoglobin in each red cell, caused by not eating foods rich in iron, folate, Vitamin 12 and A; parasites, malaria; or other infections.

   **RUTF**  
   Unusual paleness of the skin, and a sign of anaemia.

   **Palmar pallor**  
   When an unusually large amount of fluid gathers in the child’s tissues. The tissues become filled with the fluid and look swollen or puffed up.

2. Ned has severe palmar pallor – his hands are nearly white. How will you classify him?

3. You classify a child as SOME PALMAR PALLOR. What treatments are identified for this classification?

4. Lisa has been classified as SOME DEHYDRATION and SEVERE ACUTE MALNUTRITION. How will you take action now?
   a. Give ORS and zinc as per the diarrhoea charts
   b. Give ReSoMal in the clinic
   c. Advise the caregiver on how to give half strength ORS and RUTF at home
How will you check Noah for anemia?

You take Noah’s hands and survey his palms. You fold his fingers back and tell Rachel that you want to compare the color of their palms. Rachel also puts her hand out. Noah’s palms are quite a bit paler than his mother’s. They are pale, but not white.

How will you classify Noah?

Noah did show some palmar pallor, a sign of anemia. You review your classification chart for anemia and classify Noah with SOME ANAEMIA (YELLOW). If his palmar pallor was severe—that is, his hands were white—you would have classified him with SEVERE ANAEMIA.

How does Noah’s recording form look now?

![MANAGEMENT OF THE SICK CHILD AGED 2 MONTHS UP TO 5 YEARS]

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Weight (kg)</th>
<th>Temperature (°C)</th>
<th>Initial Visit?</th>
<th>Follow-up Visit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noah</td>
<td>26 mo</td>
<td>12.7 kg</td>
<td>37 °C</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**CHECK FOR GENERAL DANGER SIGNS**
- NOT ABLE TO DRINK OR BREASTFEED
- VOMITS EVERYTHING
- CONVULSIONS
- LETHARGIC OR UNCONSCIOUS
- CONVULSING NOW

**DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING?**
- For how long? ___ Days
  - Count the breaths in one minute
  - 35 breaths per minute. Fast breathing? ___
  - Look for chest indrawing
  - Look and listen for stridor
  - Look and listen for wheezing

**THEN CHECK FOR ACUTE MALNUTRITION AND ANAEMIA**
- Look for oedema of both feet.
- Determine WFH/L <-3 Z score.
- For children 6 months or older measure MUAC ___ mm.
- Look for palmar pallor.
- General danger sign present? ___
- Convulsing now? ___
- Severe palmar pallor? ___
- Some palmar pallor? ___

**If child has MUAC less than 115 mm or WFH/L less than -3 Z scores or oedema of both feet:**
- Look for signs of MEASLES:
  - Look for any other cause of fever.
  - Look for runny nose
  - Look or feel for stiff neck
  - Look for palmar pallor.
  - Note mother’s and/or child’s HIV status

**CONVULSIONS**
- VOMITS EVERYTHING
- NOT ABLE TO DRINK OR BREASTFEED
- Restless and irritable?
- Lethargic or unconscious?
- Not able to finish or able to finish?
- Drinking eagerly, thirsty?
- Look for runny nose
- Look or feel for stiff neck
- Look and listen for stridor
- Look and listen for wheezing
- ___ breaths per minute. Fast breathing?

**IMCI DISTANCE LEARNING COURSE | MODULE 6. MALNUTRITION AND ANAEMIA**

- Measles1 Measles 2 Vitamin A
- Hep B1 Hep B3
- BCG
- OPV-1 OPV-2
- DPT+HIB-1 DPT+HIB-2
- Pneumo-1 Pneumo-2
- RTV-1 RTV-2
6.8 TREAT ANAEMIA

WHAT TREATMENTS ARE IDENTIFIED FOR ANAEMIA?

Review your classification table for anaemia. What treatments do you identify?

<table>
<thead>
<tr>
<th>Pink: SEVERE ANAEMIA</th>
<th>Refer URGENTLY to hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Give iron**</td>
</tr>
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<td></td>
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<tr>
<td></td>
<td>Advise mother when to return immediately</td>
</tr>
<tr>
<td></td>
<td>Follow-up in 14 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yellow: ANAEMIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green: NO ANAEMIA</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The identified treatments you have already learned about include:

→ Give oral antimalarials – you learned steps in Module 5

Some new important treatments are identified here. You will learn more about these in Module 9 (well child care):

→ Give iron

→ Give mebendazole if child is over one year: a dose of 500 mg is given to children age 12–59 months, every 6 months.

As you read about these treatments, follow along in your TREAT THE CHILD section of your chart booklet.

Counselling on feeding problems is discussed in module 9 on well child care.
HOW WILL YOU GIVE IRON?
A child with SOME PALMAR PALLOR may have anaemia. A child with anaemia needs iron. Give syrup to the child under 12 months of age. If the child is 12 months or older, give iron tablets. Iron should not be given if the child is also receiving RUTF for severe acute malnutrition, since there is adequate iron and folic acid in RUTF to treat mild anaemia and folate deficiency. Remember to test all children for malaria.

It is important you counsel the caregiver on continuing regular iron treatments at home. Give the caregiver enough iron for 14 days. Tell her to give her child one dose daily for the next 14 days. Ask her to return for more iron in 14 days. You should also tell her that the iron may make the child’s stools black. Sometimes this scares caregivers and they might stop the treatment if they do not expect it. It is also important to tell the caregiver to keep the iron out of reach of the child. An overdose of iron can be fatal or make the child very ill.

<table>
<thead>
<tr>
<th>Age or weight</th>
<th>Iron/folate tablet grams per day</th>
<th>Iron syrup sachets per day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ferrous sulfate 200 mg + 250 µg folate (60 mg elemental iron)</td>
<td>Ferrous fumarate 100 mg per 5 ml (20 mg elemental iron per ml)</td>
</tr>
<tr>
<td>2–4 mths or 4–6 kg</td>
<td></td>
<td>1 ml (&lt; ¼ tsp.)</td>
</tr>
<tr>
<td>4–12 mths or 6–10 kg</td>
<td></td>
<td>1.25 ml (¼ tsp.)</td>
</tr>
<tr>
<td>12 mths–3 yrs or 10–14 kg</td>
<td>½ tablet</td>
<td>2 ml (&lt; ½ tsp.)</td>
</tr>
<tr>
<td>3–5 years or 14–19 kg</td>
<td>½ tablet</td>
<td>2.5 ml (½ tsp.)</td>
</tr>
</tbody>
</table>

Note: Children with Severe Acute Malnutrition and on RUTF should not be given iron.

HOW WILL YOU GIVE MEBENDAZOLE?
If the child is 1 years of age or older and has not had a dose of mebendazole in the past 6 months, the child should also be given a dose of mebendazole for possible hookworm or whipworm infection. These infections contribute to anaemia because of iron loss through intestinal bleeding. If hookworm or whipworm is a problem in your area: an anaemic child 2 years of age or older needs mebendazole.

Give 500 mg mebendazole as a single dose in the clinic. Give either one 500 mg tablet or five 100 mg tablets. Refer to the dosage chart below, and to your TREAT charts.

HOW WILL YOU GIVE ORAL ANTIMALARIALS?
If a child with pallor has a positive malaria test, the child should also be given an oral antimalarial. This is done even if the child does not have a fever. Refer to Module 5 on Fever to refresh your skills on giving oral antimalarials.
What treatments do you identify for Noah?

You have 3 classifications for Noah: COUGH OR COLD (green), UNCOMPlicated SEvere ACUTE MALNUTRITION (yellow), and SOME ANaEMIA (yellow). Using your classification tables, you have identified the following treatments:

✔ Home remedy for cough
✔ Oral antibiotics
✔ RUTF home treatment
✔ Mebendazole: if Noah hasn’t had within 6 months

You will not give iron because Noah is taking RUTF

What treatments will you provide Noah today?

Of the treatments you have identified for Noah, you will give him the following today:

✔ Oral antibiotics: initiate today for 5 days following guidelines in TREAT charts
✔ RUTF home treatment: Noah weighs 12.7 kg, and you have sachets of RUTF available, so he requires 32 sachets for the week’s supply. He needs to consume 4 ½ sachets a day.
✔ Mebendazole: Noah hasn’t had within 6 months, so you will give him a dose of 500 mg today according to your TREAT charts.

First, you explain to Rachel your concerns with Noah. You explain that you think his cough is not showing signs of severe infection, but that she will need to keep an eye on it. You also tell her that Noah’s weight is low and that getting him to a higher weight is very important to improve his nutrition and protect his body from other serious diseases. Malnutrition seriously weakens children’s bodies. Rachel looks very frightened by this but you reassure her that the RUTF treatment, and making some changes to his regular diet, should help this.

How will you counsel Rachel?

There are five key topics that you need to counsel Rachel on today:

1. Home care for cough, including a safe local remedy for cough
2. Providing oral antibiotics for 5 days, including the dosage and schedule
3. Providing RUTF at home, including the dosage, schedule, and how to give. You will also explain the special tips below:
   - Wash hands before giving RUTF
   - Sit with child on the lap and gently offer the RUTF
   - Encourage the child to eat the RUTF without forced feeding
   - Give small, regular meals of RUTF
   - Encourage child to eat 5–6 meals per day
   - Offer plenty of clean water from a cup when the child is eating the RUTF
4. Feeding recommendations for his age, which you will learn about in module 8
5. When to return to the clinic
How will you help teach Rachel?
Here you remember your 3 basic teaching steps: give information, demonstrate, and allow Rachel to practice. You do this now to show her how to give the RUTF safely from the sachet, and providing water in a cup to drink.

When should Rachel and Noah return to the clinic?
You explain to Rachel the signs that she should look for that would require Noah to come back to the clinic immediately. This includes the signs you normally discuss in your Chart Booklet, but in Noah’s case this also includes if he does not eat RUTF. You also tell her to return to the clinic in 7 days or sooner in 5 days if Noah’s cough does not improve. In 7 days you need to check Noah’s weight and nutrition status.

You check Rachel’s understanding with checking questions
✔ How will you prepare a safe cough remedy at home?
✔ How will you provide the RUTF to Noah?
✔ What are important things to remember about giving RUTF while at home?
✔ What kinds of foods and servings can you provide to Noah, can you give me an example of one day’s feeding schedule?
✔ When will you come back to the clinic with Noah?
Rachel seems a little confused when she tries to explain how to provide RUTF. However, she remembers the tips well, especially about not giving the RUTF to others in the house. You again explain RUTF to Rachel, demonstrate how to feed from the sachet, and let her practice. When you ask checking questions again, you are satisfied with her responses.

Reassuring Rachel
Rachel says she is worried she will forget to do something for Noah, because he has many treatments. You help her by providing a dosage schedule for her to reference. You reassure Rachel that she is a good mother for noticing Noah’s illness and bringing him to the clinic, and that they treatments should help him quickly. Rachel collects her things and leaves the clinic with Noah.
6.9 PROVIDE FOLLOW-UP CARE FOR NUTRITION

WHEN WILL CHILDREN FOLLOW-UP FOR PROBLEMS RELATED TO NUTRITION?

Notice that there are several different follow-up times related to nutrition. You will read about each of these follow-up visits in this section.

→ Follow-up in 1 week: the child classified as UNCOMPPLICATED SEVERE ACUTE MALNUTRITION that is receiving RUTF

→ Follow-up in 5 days: See module 8 for more information on feeding problems. If a child has a feeding problem and you have recommended changes in feeding, to see if the caregiver has made the changes. You will counsel more if needed.

→ Follow up in 14 days:
  • If a child is classified as MODERATE ACUTE MALNUTRITION
  • If a child has pallor, to give more iron.

PALLOR (follow-up 14 days)

During this visit, follow these instructions:

✔ Give the caregiver iron for the child. Advise her to return in 14 days for more iron.

✔ Continue to give the caregiver iron when she returns every 14 days for 2 months.

✔ If the child still has palmar pallor after 2 months, refer the child for assessment.

UNCOMPPLICATED SEVERE ACUTE MALNUTRITION (follow-up 1 week)

The child should return to the facility every week to have a health check-up and to receive their supply of RUTF. During each follow-up visit, the health worker at the clinic should assess the following:

1. Measure weight and MUAC at each visit. Measure height every four weeks. Determine WFH z-score at every visit.
2. Check for oedema of both feet
3. Vital signs (temperature, pulse, respiration rate) and medical check
4. Appetite test with RUTF
5. Provide RUTF ration and review counselling messages with caregiver
**NO LONGER SEVERELY MALNOURISHED**

The child has improvements in MUAC and/or weight-for-height/length. Praise the caregiver. **Continue with RUTF until the weight for length/height is above -2Z or the child has gained 15 % weight.**

**STILL SEVERELY ACUTE MALNOURISHED**

This child still has very low weight for height. Children who fail to respond to the treatment could be followed-up at home to determine the family circumstances and if there are concerns with the care or sharing of food. **Ask the caregiver to come back after one week.**

After one month of non-response to treatment, these children should be referred for further medical review and laboratory tests as required to diagnose underlying illnesses. Some of the potential problems are:

<table>
<thead>
<tr>
<th>COMMON PROBLEMS IN MANAGEMENT OF MALNUTRITION</th>
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<tbody>
<tr>
<td>Problems related to the quality of treatment</td>
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<tr>
<td>Problems related to the home environment or child</td>
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**IF CHILD CONTINUES TO LOSE WEIGHT**

Refer the child to hospital or to a feeding programme.

**REMEMBER!**

A child can be discharged from outpatient malnutrition treatment if:

- No signs of oedema for at least two weeks
- He/she has gained 15 %
- He/she is above -2 Z score for two consecutive visits
How will you provide follow-up care for Noah?

Rachel returns with Noah in 7 days, as you discussed during the initial visit. You are happy to see her. During this visit you will do an IMCI assessment and check for:

✓ If any new symptoms or signs are present
✓ If his cough is improving, the same, or worse
✓ If his weight is improving, the same, or worse
✓ If his palmar pallor has improved
✓ You will also discuss any issues Rachel has had with the treatments. You will check to be sure she’s provided all of the medications according to schedules.

How will you re-assess Noah?

In your IMCI re-assessment, you find the following:

1. Noah has no new symptoms.
2. Noah’s cough has cleared.
3. Noah’s weight is now 13 kg. He is still 104 cm tall. His MUAC is 117 cm. His new z-score is slightly between -2 and -3, which is positive news. Although he has improved you will continue the treatment with RUTF. In order to stop RUTF, Noah needs to have a z-score higher than -2Z for 2 consecutive visits. He will need to continue taking RUTF in the same amounts, 4 ½ sachets a day.
4. Noah’s palms look improved. You reclassify as NO ANAEMIA.

How will you treat Noah and counsel Rachel?

Rachel needs to continue providing RUTF treatment to Noah. You give her new supplies, and ask her to explain how she has been providing the RUTF. You also ask her to demonstrate for you. You are pleased. Rachel also needs to continue recommended feeding practices for Noah. You discuss the average day of food she has provided to Noah in the past week. You ask her about any foods that you recommended in the last visit, but that she was not able to give. You discuss if they are too expensive, or not available, and reasonable other options.

You praise Rachel for the progress so far. You counsel her on continuing this important nutrition for Noah. She seems a little worried that he needs to continue the RUTF. She was hoping he would be all better by now. You explain that gaining weight needs time, and a lot of nutrition. You encourage her to continue giving as she has.

When should Rachel and Noah return to the clinic?

You also counsel on when to return to the clinic next: either immediately, or in 1 week.
6.10 USING THIS MODULE IN YOUR CLINIC

HOW WILL YOU BEGIN TO APPLY THE KNOWLEDGE YOU HAVE GAINED FROM THIS MODULE IN MANAGING CHILDREN WITH MALNUTRITION AND ANAEMIA?

In the coming days, you should focus on these key clinical skills. Practicing these skills and using your job aids will help you to better understand how to use IMCI for malnutrition and anaemia.

ASSESS & CLASSIFY
✔ What commonly causes malnutrition in your country?
✔ Does malnutrition change by season? By region?
✔ Check every child for malnutrition.
✔ Look for oedema of both feet.
✔ Determine children's weight for height or length.
✔ Determine a child’s z-score using growth charts.
✔ Measure the child’s MUAC and determine if less than 115mm
✔ If child has severe acute malnutrition, check for medical complications.
✔ Conduct appetite test for children over 6 months.
✔ Check every child for anaemia by looking for palmar pallor.
✔ Use your chart booklet to classify malnutrition.
✔ Use your chart booklet to classify anaemia.

TREAT
✔ Treat children with severe malnutrition for low blood sugar.
✔ Give RUTF to children with severe malnutrition.
✔ Give iron to children with anaemia.
✔ Give mebendazole.
✔ Determine feeding recommendations for your area (also refer to Module 8)
✔ Determine the nutritional resources in your area. Is there nutrition counselling at your clinic or in an organization nearby? Where can you refer families for food support? What services in your area work on issues related to food and nutrition?

COUNSEL
✔ Counsel a caregiver on providing RUTF safely at home.
✔ Counsel a caregiver on feeding recommendations.
✔ Use clinic resources to teach a caregiver about nutrition and food. Also refer to module 8.

FOLLOW-UP
✔ Use IMCI instructions for follow-up of classifications of malnutrition and/or anaemia.

Remember to use your logbook for MODULE 6:
- Complete logbook exercises, and bring completed to the next meeting
- Record cases on IMCI recording forms, and bring to the next meeting
- Take notes if you experience anything difficult, confusing, or interesting during these cases. These will be valuable notes to share with your study group and facilitator.
6.11 REVIEW QUESTIONS

AFTER THE MODULE: WHAT DO YOU KNOW NOW ABOUT MANAGING MALNUTRITION AND ANAEMIA?

Now that you have finished the module, you will answer the same questions from the beginning of the module. This will help demonstrate what you have learned.

Circle the best answer.

1. When is it necessary to check a child for malnutrition and anaemia?
   a. Check if the child appears low weight for age
   b. Check every child for malnutrition and anaemia, as sometimes problems go unnoticed
   c. Check if the caregiver tells you about a feeding problem

2. Sami has a MUAC measurement of 112 mm. What does this tell you?
   a. Sami is healthy
   b. 112 mm is low weight, so you will advise on feeding recommendations
   c. Sami is showing a sign of severe acute malnutrition

3. A child with anaemia needs:
   a. Vitamin A
   b. Iron
   c. Glucose

4. Traci shows oedema in her feet. What are your actions?
   a. Sit Traci and elevate her legs, to drain the swelling
   b. Advise Tracy’s mother to cut down the salts and fats in her child’s diet
   c. Urgently refer, as this is a sign of severe malnutrition

5. What is pallor palmar?
   a. A sign of anaemia
   b. A sign of local infection
   c. A sign of severe wasting

6. What is marasmus?
   a. A common skin infection in malnourished children
   b. A type of malnutrition where the child is very thin and lacks fat
   c. A type of malnutrition where the child has a puffy moon face and thin hair

7. Which of the following is an important measurement of wasting?
   a. Weight-for-age
   b. Percentage weight gain since last visit
   c. Weight-for-height (or length)

Check your answers on the next page. How did you do? ............ complete out of 7.
Did you miss questions?
Turn back to the section to re-read and practice the exercises.
6.12 ANSWER KEY

REVIEW QUESTIONS

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ANSWER</th>
<th>Did you miss the question? Return to this section to read and practice:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>INTRODUCTION</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>ASSESS MALNUTRITION</td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>TREAT ANAEMIA</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>ASSESS MALNUTRITION, TREAT MALNUTRITION</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>ASSESS ANAEMIA</td>
</tr>
<tr>
<td>6</td>
<td>B</td>
<td>INTRODUCTION TO MALNUTRITION</td>
</tr>
<tr>
<td>7</td>
<td>C</td>
<td>ASSESS MALNUTRITION</td>
</tr>
</tbody>
</table>

EXERCISE A (INTRODUCTION)

1. Malnutrition develops when a child’s diet is missing amounts of essential vitamins, minerals and other nutrients. There are many types of malnutrition. The causes vary by country.

2. Malnutrition is an underlying cause in up to 35% of childhood deaths around the world. However, children might not present with specific complaints that suggest malnutrition or anaemia. It is possible that you or the child’s family might not even notice or know that the child is malnourished or anaemic. This is why it is important to check every child.

3. Answers below:
   a. Puffy face TRUE
   b. Distended abdomen TRUE
   c. Extremely thin body TRUE
   d. Oedema of the feet TRUE
   e. Scaly skin on legs TRUE
   f. Rash on belly FALSE
   g. Lack of fat on buttocks and arms TRUE
   h. Child is crying from hunger FALSE
   i. Thin hair that may fall out TRUE
EXERCISE B (PLOT WEIGHT FOR HEIGHT)
1. 76 cm, 9 kg: Between 0 and -1
2. 80 cm, 7.5 kg: Below -3
3. 90 cm, 11.2 kg: Between -1 and -2
4. 93 cm, 11 kg: Between -2 and -3
5. 85 cm, 12 kg: Between 0 and 1

EXERCISE C (ASSESS)
1. Answers below

<table>
<thead>
<tr>
<th>Child is:</th>
<th>Below -3</th>
<th>Between -3 and -2</th>
<th>Between -2 and -1</th>
<th>Between -1 and 0</th>
<th>Between 0 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Boy, 18 months, length 75 cm, weight 8.5 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Boy, 30 months, height 118 cm, weight 22 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>c. Girl, 11 months, length 70 cm, weight 6 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Girl, 27 months, weight 11 kg, height 95 cm</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Boy, 7 months, length 60 cm, weight 5 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Girl 32 months, length 111 cm, weight 14.5 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Boy, 26 months, weight 14.5 kg, height 113 cm</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Girl, 32 months, height 111 cm, weight 16.5 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Girl, 20 months, length 100 cm, weight 14.5 kg</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This one is a trick! She is 32 months but you are given length (presumably because she was too weak to stand), so you need to subtract 0.7 cm for her height.

2. Which of the children above are moderately malnourished based on their Z-scores? **D, E, F**
3. Which of the children above have severe acute malnutrition based on their Z-scores? **C, G**
4. Answers below:

<table>
<thead>
<tr>
<th>Child is:</th>
<th>TICK:</th>
<th>WRITE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Child’s MUAC is 112 mm</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>b. Child has Z-score between -2 and -3</td>
<td>X</td>
<td>Must be below -3 for SAM</td>
</tr>
<tr>
<td>c. Child has a swollen right foot and is very skinny</td>
<td>X</td>
<td>SAM sign is oedema of both feet</td>
</tr>
<tr>
<td>d. Child is too weak to stand</td>
<td>X</td>
<td>Child could be weak for many other reasons, this is not alone a sign of SAM</td>
</tr>
<tr>
<td>e. Child’s MUAC is 113.5</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>f. Child has oedema of both feet</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>g. MUAC is 120 mm and child is irritable</td>
<td>X</td>
<td>MUAC must be under 115 mm</td>
</tr>
</tbody>
</table>

5. Oedema of both feet. This is a sign of SAM, and especially, kwashiorkor.

**EXERCISE D (ASSESS)**

1. Signs:
   1. MUAC at or less than 115 mm
   2. Weight-for-height/length z-score less than -3
   3. Oedema of both feet

2. Low body temperature is under 35 °C under-arm, or rectal under 35.5 ° or very cold hands and feet

3. Are the following true or false statements?
   a. FALSE: cannot give appetite test to child under 6 months old
   b. FALSE: child should be encouraged, but not forced to consume
   c. TRUE
   d. TRUE

4. The minimum is 1/3 of a 92 g sachet of RUTF, to be eaten within 30 minutes.
EXERCISE E (CLASSIFY)

1. Answers below:

<table>
<thead>
<tr>
<th></th>
<th>Complicated severe acute malnutrition</th>
<th>Uncomplicated severe acute malnutrition</th>
<th>Moderate acute malnutrition</th>
<th>No acute malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Child has MUAC of 112 mm and no complications</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Child has WFH z-score less than -3 and failed the appetite test</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Child has MUAC of 112 mm</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Child has MUAC of 117 mm and no oedema</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>e. Child’s WFH z-score is between -1 and -2</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Child has WFH z-score between -3 and -2</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Child has MUAC of 113 mm and is showing signs of shock</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Child is less than 6 months, has lost weight and not breastfeeding effectively</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. These children need urgent treatment-based RUTF, deworming, Vitamin A, and second line oral antibiotics. These children are at risk of death from serious diseases. Check if the child is at high risk of HIV infection, whether s/he has been vaccinated for measles, and test for malaria.

3. A child with SEVERE UNCOMPLICATED MALNUTRITION should return for follow-up after 1 week.
EXERCISE F (TREAT)

1. RUTF amounts below:
   a. 3.7 kg, paste available – 900 grams paste
   b. 16.7 kg, sachets available – 35 sachets (92 g each)
   c. 7.8 kg, sachets available – 21 sachets (92 g each)
   d. 11.6 kg, paste available – 2800 grams paste

2. Should follow-up in 1 week

3. Could include the following messages:
   ✔ RUTF is a special therapeutic food for thin children only. It should not be shared.
   ✔ RUTF is the only food that thin children need for their recovery.
   ✔ For young children who are breastfeeding, continue breastfeeding.
   ✔ Always give plenty of clean water to the child to drink when giving RUTF.
   ✔ Wash hands before feeding the child.

4. Focus on counselling messages above, (b) start with who, what, why, when, where, or how.

5. Answers below:

<table>
<thead>
<tr>
<th></th>
<th>CONTINUE</th>
<th>STOP</th>
<th>WHY?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Tsepi (boy) now weighs 13.5 kg, and is 96 cm in height. Last visit he weighed 13 kg.</td>
<td>X</td>
<td>Has been above -2 z-score for two consecutive visits</td>
<td></td>
</tr>
<tr>
<td>b. Rakim's weight has changed from 20.5 kg to 23 kg.</td>
<td>X</td>
<td>Has not achieved 15% weight gain</td>
<td></td>
</tr>
<tr>
<td>c. Angie (girl) weighs 15.5 kg and is 109 cm in height. Last visit she weighed 14.5.</td>
<td>X</td>
<td>Is not above -2 z-score</td>
<td></td>
</tr>
<tr>
<td>d. Sheena's weight has changed from 32.5 kg to 38.0 kg.</td>
<td>X</td>
<td>Has achieved 15% weight gain</td>
<td></td>
</tr>
<tr>
<td>e. Maria (girl) now weighs 17.2 kg and is 116 cm in height. Last visit she weighed 17.3 kg.</td>
<td>X</td>
<td>Has not been above -2 z-score for two consecutive visits</td>
<td></td>
</tr>
</tbody>
</table>
EXERCISE G (ASSESS)

1. TERMS ARE MATCHED WITH CORRECT DEFINITION BELOW:

   **Anaemia**  A reduced number of red cells or a reduced amount of haemoglobin in each red cell, caused by not eating foods rich in iron, parasites, malaria, or other infections.

   **Oedema**  When an unusually large amount of fluid gathers in the child’s tissues. The tissues become filled with the fluid and look swollen or puffed up.

   **Pallor**  Unusual paleness of the skin, and a sign of anaemia.

   **RUTF**  A food product that is used for the safe therapeutic feeding of SAM children.

   **Palmar pallor**  A sign that is identified by looking at a child’s palm.

2. SEVERE PALMAR PALLOR. Requires referral.

3. Treatments for SOME PALMAR PALLOR include:

   ✔ Give Iron
   ✔ Oral antimalarials (if test positive)
   ✔ Mebendazole or other deworming treatment (if child older than one year)