Module 5

5. Daily care
Module 5

Daily care
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Web Annex
The World Health Organization (WHO) Training course on the inpatient management of severe acute malnutrition includes training modules, training guides, and supporting materials. The training package is based on the 2002 WHO Training course on the management of severe malnutrition\(^1\), which was updated in 2009\(^2\) to include the WHO Child Growth Standards, the use of mid-upper arm circumference to assess wasting, and the provision of ready-to-use therapeutic foods (RUTF) for the management of severe acute malnutrition, which enabled early transfer of children from inpatient to outpatient care. In 2013, WHO issued the Guideline: updates on the management of severe acute malnutrition in infants and children\(^3\), which provided updated recommendations on the following:

a. admission and discharge criteria for children aged 6–59 months with severe acute malnutrition;
b. where to manage children with severe acute malnutrition who have bilateral pitting oedema;
c. use of antibiotics in the management of children with severe acute malnutrition in outpatient care;
d. changes in the provision of vitamin A supplementation in the treatment of children with severe acute malnutrition;
e. options for therapeutic feeding approaches in the management of severe acute malnutrition in children aged 6–59 months;
f. fluid management of children with severe acute malnutrition and dehydration with and without shock;
g. management of HIV-infected children with severe acute malnutrition;
h. identifying and managing infants who are less than 6 months old with severe acute malnutrition.

The training course has been updated to incorporate these updates. Table 1 lists the key technical updates made for each module.

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<table>
<thead>
<tr>
<th>Module</th>
<th>Procedure</th>
<th>2009 version</th>
<th>New version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 2: Principles of care</td>
<td>Admission criteria for inpatient care for children aged 6 months or older</td>
<td>Use of visible severe wasting as a sign of severe acute malnutrition</td>
<td>Visible severe wasting is no longer recommended as a sign of severe acute malnutrition, due to its subjective nature</td>
</tr>
</tbody>
</table>
|                                    |                                                                           | Admit all severely malnourished children for inpatient care                 | • Severely malnourished children with medical complications or failed appetite test should be admitted for inpatient care (or severely malnourished children who have mitigating circumstances such as disability, social issues, or difficulties with access to care)  
• Severely malnourished children without these signs or mitigating circumstances should be managed in outpatient care |
|                                    |                                                                           |                                                                               | Emphasis on appetite test as an important procedure to decide whether severely malnourished children should be admitted for inpatient or outpatient care |
|                                    |                                                                           | Oedema of both feet                                                         | • Children with severe acute malnutrition who have severe bilateral oedema (+++) should be admitted for inpatient care, even when they do not present with medical complications and have appetite  
• Children who have only + or ++ bilateral pitting oedema but present with medical complications or have no appetite, or are wasted, should be admitted for inpatient care  
• Children aged 6 months or older who have + or ++ bilateral pitting oedema but no medical complications and have appetite should be managed in outpatient care |
<table>
<thead>
<tr>
<th>Module</th>
<th>Procedure</th>
<th>2009 version</th>
<th>New version</th>
</tr>
</thead>
</table>
| **Module 2: Principles of care** | Criteria for transfer to outpatient care for children aged 6 months or older | Transfer to outpatient care when:  
- medical complications have been treated, and  
- the child has minimal oedema, and  
- the child is alert, and  
- the child eats 75% of the proposed daily amount of ready-to-use therapeutic food (RUTF);  

The decision should be determined by assessment of clinical condition and not anthropometric outcomes | |
| | Criteria for discharge from all care for children aged 6 months or older | Discharge from all care when:  
- weight-for-height/length Z-score is $\geq -2$, and  
- no oedema for at least 2 weeks, or  
- mid-upper arm circumference is $\geq 125$ mm, and  
- no oedema for at least 2 weeks  

The anthropometric indicator used to confirm severe acute malnutrition should also be used to assess whether a child has reached nutritional recovery  

Children admitted with only bilateral pitting oedema +++ should be discharged from treatment based on whichever anthropometric indicator is routinely used in programmes  

Percentage weight gain should not be used as a discharge criterion | |
<table>
<thead>
<tr>
<th>Module</th>
<th>Procedure</th>
<th>2009 version</th>
<th>New version</th>
</tr>
</thead>
</table>
| Module 3: Initial management | Doses of routine antibiotics | • Amoxicillin 25 mg/kg  
• Gentamicin 5 mg/kg  
• Ampicillin 50 mg/kg | The doses of routine antibiotics have been adjusted, for example: amoxicillin 25–40 mg/kg, gentamicin 7.5 mg/kg, to reflect the latest recommendations from the 2013 WHO Pocket book of hospital care for children |
| Vitamin A | | | Children with severe acute malnutrition should receive the daily recommended nutrient intake of vitamin A (5000 IU) throughout the treatment period. If the children are receiving F-75, F-100 or RUTF that comply with WHO specifications (and therefore already contain sufficient vitamin A), or vitamin A is part of other daily supplements, the children do not require additional vitamin A. Children with severe acute malnutrition should be given a high dose of vitamin A (50 000 IU, 100 000 IU or 200 000 IU, depending on age) on admission, only if they are given therapeutic foods that are not fortified as recommended in WHO specifications and vitamin A is not part of other daily supplements. |
| | High dose only indicated in corneal ulceration | | Give a high dose (50 000 IU, 100 000 IU or 200 000 IU, depending on age) of vitamin A to children with severe acute malnutrition and eye signs of vitamin A deficiency or recent measles in inpatient care on Days 1, 2, and 15 (or at discharge to outpatient care), irrespective of the type of therapeutic food they are receiving |
| Atropine | 1% 3 times a day | | The concentration of atropine has been adjusted to 0.1% 3 times a day following discussion with and guidance from several experts as well as the WHO Model List of Essential Medicines. |
Two options for transitioning children from F-75 to RUTF are suggested:
a. Start feeding by giving RUTF as prescribed for the transition phase. If the child does not take the prescribed amount, then top up the feed with F-75. Increase the amount of RUTF over 2–3 days until the child takes the appropriate amount of RUTF to meet energy needs, or:
b. Give the child the prescribed amount of RUTF for the transition phase. If the child does not take at least half the prescribed amount in the first 12 hours, then stop giving RUTF and give F-75 again. Retry the same approach after another 1–2 days until the child takes the appropriate amount of RUTF to meet energy needs.

Children with bilateral pitting oedema should transition to RUTF when appetite returns and oedema is reducing.

Children who are taking F-100 and are achieving rapid weight gain during rehabilitation should be changed to RUTF. Ensure that they are finishing up the appropriate amount of RUTF before transferring them for outpatient care.

- Weight-for-height Z-score < –3, and/or
- Presence of bilateral pitting oedema, or
- Recent weight loss
- Prolonged failure to gain weight
- Serious breastfeeding difficulties after mother’s counselling

Infants with severe acute malnutrition but no oedema should be given expressed breast milk. Where this is not possible, commercial (generic) infant formula or F-75 or diluted F-100 may be given, either alone or as the supplementary feed together with breast milk.

Infants with severe acute malnutrition and bilateral pitting oedema should be given F-75 as a supplement to breast milk.
<table>
<thead>
<tr>
<th>Module</th>
<th>Procedure</th>
<th>2009 version</th>
<th>New version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 4: Feeding</td>
<td>Criteria for transfer to outpatient care for infants aged 0–6 months</td>
<td>Transfer to outpatient care when:</td>
<td>• all clinical conditions are resolved, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• the infant has good appetite, is clinically well and alert, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• weight gain is satisfactory, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• the infant has been checked for immunizations, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• the mother or caregiver is linked with community-based follow-up and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>support</td>
</tr>
<tr>
<td></td>
<td>Criteria for discharge from all care for infants aged 0–6 months</td>
<td>Discharge from all care when the infant:</td>
<td>• is breastfeeding effectively or feeding well with replacement feeds, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• has adequate weight gain, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• has a weight-for-length Z-score ≥ –2</td>
</tr>
<tr>
<td>Module 5: Daily care</td>
<td></td>
<td>Similar updates as those made to modules 3 and 4, where applicable</td>
<td></td>
</tr>
<tr>
<td>Module 6: Monitoring and problem solving</td>
<td></td>
<td>No major technical updates. Minor updates, for example where RUTF replaces F-100</td>
<td></td>
</tr>
<tr>
<td>Module 7: Involving mothers in care</td>
<td>Criteria for referral to outpatient care for children aged 6 months or older</td>
<td>Similar updates as in module 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Criteria for discharge from all care for children aged 6 months or older</td>
<td>Similar updates as in module 2</td>
<td></td>
</tr>
<tr>
<td>Module</td>
<td>Procedure</td>
<td>2009 version</td>
<td>New version</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Module 8: Outpatient management of severe</td>
<td></td>
<td></td>
<td>New module</td>
</tr>
<tr>
<td>acute malnutrition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting materials</td>
<td>Critical care pathways and answers to exercises</td>
<td></td>
<td>All critical care pathways and answers to exercises have been updated to</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>reflect the updates in modules</td>
</tr>
<tr>
<td></td>
<td>Organization of supporting materials</td>
<td></td>
<td>The supporting materials have been incorporated within the modules and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>guides concerned</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

This updated version was coordinated by Zita Weise Prinzo, Department of Nutrition for Health and Development, together with Chantal Gegout (formerly in the Department of Nutrition for Health and Development), in collaboration with Wilson Were, Department of Maternal Child and Adolescent Health. Thanks are due to Jaden Bendabenda, Department of Nutrition for Health and Development, for finalizing this version and preparing it for publication. Special thanks are due to Diana Estevez, who helped during the finalization process.

Acknowledgements are also due to Adelheid Onyango, Hana Bekele and Férima Coulybaly-Zerbo from the WHO Regional Office for Africa, and to Marina Adrianopoli from the WHO Regional Office for the Eastern Mediterranean for their tireless support and valuable inputs, and for organizing the pilot trainings in Togo, Uganda and Zambia.

In addition, special thanks are due to Beatrice Amadi, Teaching Hospital, Lusaka, Zambia, for her contribution during the pilot testing and for reviewing the course, and to Professor Michael Golden and Dr Yvonne Grellety for reviewing and providing invaluable technical inputs to the course.

WHO is grateful to all those involved in the production of the first version of the training course in 2002, and would like to thank ACT International, United States of America, for having developed the manuscript of the training course. WHO acknowledges the substantial technical contribution and advice of Professor A. Ashworth-Hill from the London School of Hygiene and Tropical Medicine, who also acted as one of the first course facilitators. Special thanks are extended to Dr S. Khanum (former Director of Health Services, WHO Regional Office for South-East Asia in New Delhi), for her technical contribution, comments, and advice during the development of the first version of the training modules and for organizing the first field testing at the International Centre for Diarrhoeal Disease Research, Bangladesh.

FINANCIAL SUPPORT

WHO gratefully acknowledges the financial support from the French Muskoka Fund and the Bill and Melinda Gates Foundation for the update of the training materials.
## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCP</td>
<td>critical care pathway</td>
</tr>
<tr>
<td>CMV</td>
<td>combined minerals and vitamins</td>
</tr>
<tr>
<td>IM</td>
<td>intramuscular</td>
</tr>
<tr>
<td>IU</td>
<td>international unit</td>
</tr>
<tr>
<td>IV</td>
<td>intravenous</td>
</tr>
<tr>
<td>MUAC</td>
<td>mid-upper arm circumference</td>
</tr>
<tr>
<td>NG</td>
<td>nasogastric</td>
</tr>
<tr>
<td>ReSoMal</td>
<td>rehydration solution for malnutrition</td>
</tr>
<tr>
<td>RUTF</td>
<td>ready-to-use therapeutic food</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
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</table>
INTRODUCTION

Attentive and consistent daily care will make the difference in a severely malnourished child’s recovery. The routine of daily care in a severe acute malnutrition ward includes such tasks as feeding, bathing, weighing, giving antibiotics, and monitoring and recording each child’s progress. Throughout a very busy day, and also through the night, the staff must be patient and caring with both the children and their parents.

Feeding tasks were described in Module 4 on feeding. Weighing and measuring tasks were described in Module 2 on principles of care. This module will describe other aspects of daily care. You will practise tasks related to daily care during ward visits. Written practice in the module will focus on completing and interpreting the daily care page, monitoring record, and weight chart of the critical care pathway (CCP).

LEARNING OBJECTIVES

This module and related clinical sessions will describe and allow you to practise the following skills:

• handling a severely malnourished child appropriately;
• caring for the skin and bathing a severely malnourished child;
• giving prescribed antibiotics and other medications and supplements;
• caring for the eyes;
• monitoring pulse, respiration, and temperature and watching for danger signs;
• completing and interpreting the daily care page, monitoring record, and weight chart of the CCP.
1. **HANDLE THE CHILD GENTLY**

Severely malnourished children must be handled very gently, especially at the beginning of their care. The severely malnourished child’s body is fragile and bruises easily. The child needs all their energy to recover, so must stay calm and not become upset. It is important to speak quietly and handle children as little as possible at first. Hold and touch children with loving care when feeding, bathing, weighing and caring for them.

It is critical for mothers to stay with their children in the hospital. The number of other adults interacting with each child should be limited, and the most skilled staff available should perform medical procedures.

As the child recovers, stimulation of the child should increase. Play, physical activities, and mental and emotional stimulation become very important to the child’s complete recovery. There will be more information on these activities in Module 7, on involving mothers.
Tick all of the appropriate responses or actions in the situations described below.

1. A child is crying after having an intramuscular (IM) injection. The mother appears upset and uncertain what to do.
   a. Leave the child alone until the child calms down.
   b. Hold and comfort the child.
   c. Explain to the mother why the procedure was necessary and how it will help the child.
   d. Show the mother how to hold the child gently without rubbing the site of the injection.

2. A mother pays little attention while her child is bathed by a nurse. The mother sits quietly, does not participate, and is hesitant to touch the child.
   a. Look at the mother directly and explain the bathing procedure.
   b. Reassure the mother that she will not hurt her child by bathing and holding her gently.
   c. Show the mother how to bathe and hold the child gently.
   d. Leave the mother alone with the child, assuming she will figure out how to finish the bath.
   e. Watch and help while having the mother dress and warm the child after the bath.

3. A mother falls asleep and does not finish feeding her child F-75 during the night.
   a. Let the mother sleep while you feed the child yourself.
   b. Gently wake the mother and ask, “Can you finish the feed?”
   c. Wake the mother and tell her that the child could die if not fed every 2 hours.
   d. Suggest that the mother take turns sleeping and giving feeds with another woman whose child is nearby.

---

Check your own answers to this exercise by comparing them to the answers given at the end of the module.

Example of daily care page of CCP

The next page shows an example of a completed daily care page of the CCP. When daily care tasks are performed, the nursing staff should record their initials on this page.
NAME_________________________ M F DATE OF BIRTH___________AGE________(months) DATE OF ADMISSION___________HOSP. ID:__________

**DAILY CARE**

<table>
<thead>
<tr>
<th>WEEK 1</th>
<th>WEEK 2</th>
<th>WEEK 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAYS IN HOSPITAL</strong></td>
<td><strong>DAYS IN HOSPITAL</strong></td>
<td><strong>DAYS IN HOSPITAL</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Date</td>
<td>Date</td>
</tr>
<tr>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
</tr>
<tr>
<td>11/1</td>
<td>12/1</td>
<td>13/1</td>
</tr>
<tr>
<td>14/1</td>
<td>15/1</td>
<td>16/1</td>
</tr>
</tbody>
</table>

Daily weight (kg): 8.8 8.8 8.8 8.8 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6

Weight gain (g): Calculate when on RUTF/F-100

Bilateral pitting oedema 0 0 ++ +++

Diarrhoea (indicate number of loose stools) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Vomiting (indicate the frequency) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

RESOMAL…………………mls

**FEED PLAN:**

<table>
<thead>
<tr>
<th>Type of feed</th>
<th># daily feeds</th>
<th>Amount to give per feed (ml)(packet)</th>
<th>Total amount taken (ml)(packet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-75</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>F-75</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>F-75</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>F-75</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

**ANTIBIOTICS AND OTHER DRUGS**

<table>
<thead>
<tr>
<th>Drug</th>
<th>IV</th>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentamicin</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Folic acid (if there is clinical anaemia)</td>
<td>AC</td>
<td>AC</td>
</tr>
</tbody>
</table>

**VITAMIN A**

| 200,000 IU | AC | AC |

**Drug for worms**

<table>
<thead>
<tr>
<th>Type of worm</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRON 2K daily</td>
<td>0.75 ml</td>
</tr>
</tbody>
</table>

**EYE PROBLEMS**

<table>
<thead>
<tr>
<th>Drug</th>
<th>08.00</th>
<th>14.00</th>
<th>20.00</th>
<th>02.00</th>
<th>08.00</th>
<th>14.00</th>
<th>20.00</th>
<th>02.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentamicin</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Zinc oxide ointment</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

**Other**

<table>
<thead>
<tr>
<th>Drug</th>
<th>08.00</th>
<th>14.00</th>
<th>20.00</th>
<th>02.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cephalothin</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Atropine</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
<td>AC</td>
</tr>
<tr>
<td>Zinc oxide ointment</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

**Calculation when on RUTF/F**

- 5000 IU
- 200,000 IU

**Sign your initials when given.**
2. CARE FOR SKIN AND BATHE THE CHILD

Bathe children daily unless they are very sick. If a child is very sick, wait until the child is recovering before bathing.

If the child does not have skin problems, or has only mild or moderate dermatosis, use regular soap for bathing.

If the child has severe (+++) dermatosis, apply zinc oxide 10% ointment to the skin lesions. Record it on the daily care page of the CCP (see example on the previous page).

Other useful medications include castor oil ointment if available, petroleum jelly, gentian violet, silver sulphadiazine and paraffin gauze dressing. These help to relieve pain and prevent infection.

Use a different tube of ointment for each child to avoid spreading infection. If the diaper area becomes colonized with _Candida_, use nystatin ointment or cream after bathing.

Advise the mother not to use diapers (nappies) so the affected area can dry. Be sure to dry the child well after a bath and wrap the child warmly.

3. GIVE PRESCRIBED ANTIBIOTICS AND OTHER MEDICATIONS

It is efficient to give antibiotics and other medications using a nursing trolley that is wheeled around the ward regularly (for example, every 2 or 4 hours). As the nurse passes each bed, he or she checks the CCP and gives the child any medication needed at that time. In addition, the nurse may perform such activities as monitoring respiration, pulse, and temperature, or giving eye drops. The needed equipment and medications are kept on the trolley.

3.1 Give antibiotics as prescribed

**Note:** The prescription of appropriate antibiotics has already been covered in Module 3 on initial management. This section is about administering them.

When antibiotics are prescribed, list them on the daily care page of the CCP. Also list the time that each dose should be given, allowing one row per dose. Draw a box around the days and times that the antibiotic should be given. If the prescription changes, be sure to update the daily care page of the CCP. Whenever a dose is given, register it on the daily care page.
Look at the example of the daily care page at the end of section 1 above. Notice how the antibiotics section is set up and completed.

It is assumed that nursing staff know how to measure and administer oral doses, so that will not be discussed here. However, giving antibiotics by IM injection may be difficult in a severely malnourished child and requires special care and attention.

Possible sites for IM injections are the buttocks or upper arm. Carefully select the site for an injection:

- choose a site with enough muscle
- change the site when it becomes sore.

### 3.2 Folic acid

Commercial (pre-packaged) therapeutic feeds (F-75, F-100, and RUTF) already contain folic acid. Do not give folic acid if the child is receiving therapeutic feeds that follow WHO specifications, unless the child has very severe anaemia (see Module 3).

### 3.3 Vitamin A

Commercial (pre-packaged) therapeutic foods (F-75, F-100, and RUTF) already contain vitamin A. Do not give additional vitamin A unless:

- the child has visible clinical signs of vitamin A deficiency (Bitot’s spots, corneal clouding, or corneal ulceration);
- the child has signs of eye infection (pus, inflammation);
- the child has measles now or has had measles in the past 3 months.

In such cases, give vitamin A on Day 1, Day 2 and Day 15 using the doses below.

#### Timing and oral dosages of vitamin A

<table>
<thead>
<tr>
<th>Indication</th>
<th>Timing</th>
<th>Age</th>
<th>Dosage (IU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely malnourished children with eye signs or recent measles</td>
<td>Day 1</td>
<td>&lt; 6 months</td>
<td>50 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6–12 months</td>
<td>100 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 12 months</td>
<td>200 000</td>
</tr>
<tr>
<td></td>
<td>Day 2</td>
<td>Same age-specific dose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day 15</td>
<td>Same age-specific dose</td>
<td></td>
</tr>
</tbody>
</table>

Enter the dose in the first column of the daily care page if vitamin A is given. Sometimes the first dose is given immediately when the child arrives at the hospital for emergency treatment of corneal ulceration. If so, be sure that this dose is entered on the daily care page, so that a duplicate dose is not given on Day 1. Oral vitamin A is standard.

On the CCP shade out the boxes for Day 1, Day 2 and Day 15 for vitamin A if these doses are not needed (child has no eye signs and no recent measles).
1. Look again at the example of the daily care page for Bianca (end of section 1). Bianca is 2 years old and was admitted with some pus in her left eye. Should she be given a dose of vitamin A at the end of rehabilitation? If yes, what is the dose?

2. Another severely malnourished child, Nawaz, is admitted with no signs of vitamin A deficiency or eye infection. Nawaz is 12 months old and has never had measles. He has no record of previous doses of vitamin A. On what day(s) should Nawaz be given vitamin A? What is the dose?

3. Georgio is 3 years old and has severe oedema. He has Bitot’s spots, and there is no evidence that he has had a dose of vitamin A in the past month.
   a. Should vitamin A be given to him? What is the dose?
   b. When should Georgio’s next dose be given? What is the dose?

4. Dalia (aged 20 months) was referred from a health centre where she was given 200 000 IU vitamin A yesterday. She has corneal clouding.
   a. Should she be given another dose today, on Day 1 at the hospital?
   b. Should she be given a dose on Day 2?
   c. And at the end of rehabilitation?

Check your own answers to this exercise by comparing them to those given at the end of the module.
3.4 If the child has worms, give appropriate drugs

Worms are common in older children who play outside, and they can be a problem in severely malnourished children. They can cause dysentery and anaemia.

Ask the mother if the child has worms. If so, give an appropriate drug for worms if the child has not already recently received deworming drugs.

Treatment should be delayed until the rehabilitation phase, to be given on transfer to outpatient care (if the child is receiving RUTF) or before discharge from the hospital (if the child is receiving F-100). However, treatment may be started earlier if necessary (e.g. in the case of very severe infection with worms).

Register on the daily care page the type of worm and the drug(s) given. Record when drugs for worms are given. If no worms are reported, write “none” or shade out the spaces for these drugs.

Refer to the WHO Pocket book of hospital care for children, Annex 2: Drug dosages and regimens.¹

3.5 Iron

Iron should not be given in the stabilization (acute) phase (iron can have toxic effects and reduce resistance to infection).

In the rehabilitation phase, do not give iron if the child is receiving RUTF. RUTF already contains iron.

If the child is still in hospital after about 10–14 days and is taking F-100, iron should be given. In such cases, use the following procedures.

• Calculate and administer the amount needed; always give iron orally, never by injection. Preferably give iron between meals using a liquid preparation.
• Give 3 mg of elemental iron per kg of body weight per day.
• Write the dose on the daily care page of the CCP in the left column. Register each time when the dose is given (twice a day). Continue giving iron for the rest of the hospital stay if the child is on F-100.

4. CARE FOR THE EYES

Tetracycline or chloramphenicol eye drops or tetracycline eye ointment should be
given for eye infection or possible eye infection. Atropine eye drops are used to
relax the eye when there is corneal involvement (i.e., corneal clouding or ulceration).
In some cases, both types of eye drops may be needed.

Here is a summary of the eye drops needed for the eye signs discussed in this course.

If the child has Bitot’s spots only (no other eye signs):
• No eye drops needed.

If the child has pus or inflammation:
• Give tetracycline or chloramphenicol eye drops 4 times a day.

If the child has corneal clouding or corneal ulceration:
• Give both:
  o tetracycline or chloramphenicol eye drops 4 times a day
  o atropine eye drops, one drop 3 times a day.

If both types of drops are needed, give them both at the same time for convenience
(i.e., give tetracycline 4 times daily, and at 3 of those times also give atropine).
Continue drops for at least 7 days and until all eye signs disappear.

Use special care and tenderness in examining the eyes and instilling eye drops.
To avoid spreading infection, use a separate dropper and bottle for each child.
Wash hands before and after treating each child.

The affected eye(s) should also be bandaged for 3–5 days until inflammation and
irritation subside. Use eye pads soaked in 0.9% saline solution, held in place with
gauze bandages. The damp pads and bandages will cool the soreness, prevent
the child scratching the eyes, and promote healing. Change pads and bandages
whenever drops are given.

To bandage the eyes:
1. wash hands
2. soak eye pads with 0.9% saline solution
3. place a pad over each affected eye
4. wrap a gauze bandage over the pads and around the head (not too tight,
   just tightly enough to hold in place).

Record on the daily care page when eye drops are given. Shade out the boxes
when eye drops are no longer needed.
In this exercise you will decide on treatment for children with various eye signs. For some of the cases, you will refer to the photographs (which were provided on Day 1 of the training). For each child pictured or described, determine how many doses of vitamin A are needed and what kind of eye drops are needed.

1. **Photo 8:** It was necessary to clean and open this child’s eyes to examine them. Pus and inflammation were the only eye signs found. The child has not had a dose of vitamin A in the last month.
   a. On what days should this child receive vitamin A?

   b. What eye drops should be given, if any?

2. **Photo 9:** This child has corneal clouding. He has not had a dose of vitamin A in the last month.
   a. On what days should this child receive vitamin A?

   b. What eye drops should be given, if any?

3. **Photo 10:** This child has a Bitot’s spot and inflammation. He has not had a dose of vitamin A in the last month.
   a. On what days should this child receive vitamin A?

   b. What eye drops should be given, if any?

4. **(No photo)** A severely malnourished child (aged 2 years) has measles. He has some inflammation in both eyes but no other eye signs. He was referred from a health centre, where he received a dose of vitamin A yesterday.
5. **(No photo)** A severely malnourished child has clear eyes. The child is 20 months old and had measles 2 months ago. There is no evidence that he had a dose of vitamin A in the past month.
   a. On what days should this child receive vitamin A?
   b. What eye drops should be given, if any?

6. **(No photo)** A severely malnourished child (aged 11 months) has clear eyes with no signs of eye problems. She has never had measles. She has not had a dose of vitamin A in the past month.
   a. On what days should this child receive vitamin A?
   b. What eye drops should be given, if any?

7. **Photo 12:** This child has corneal ulceration. He has not had a dose of vitamin A in the past month.
   a. On what days should this child receive vitamin A?
   b. What eye drops should be given, if any?

When you have completed this exercise, please discuss your answers with a facilitator.
Exercise B

This exercise will be done as a group. Your facilitator will prompt you as you set up the daily care page of a CCP. When you have completed this exercise, save the daily care page for later use in Exercise C.

Case 1: Lani

Lani is an 18-month-old girl with severe wasting and oedema of both feet. She also has severe dermatosis, corneal clouding, and pus draining from her left ear. Lani does not seem to have worms.

Nurses take the nursing trolley around the ward to give antibiotics, eye drops etc. at the following times:

08:00, 14:00, 16:00, 20:00, 24:00, 02:00

Use the information on Lani’s initial management page, and the information above on nursing rounds, to set up Lani’s daily care page (see next page).

When you have completed this exercise, your facilitator will give you an answer sheet.
### NAME Lani F DATE OF BIRTH 29/6/17 AGE 18 (months) DATE OF ADMISSION 14/2/18 TIME: 07.30 HOSP. ID: 324

### INITIAL MANAGEMENT

#### SIGN OF SAM
- **Severe wasting?** Yes
  - **Bilateral pitting oedema?** Yes
  - **Dehydration?** Yes
- **Weight (kg):** 7.0
  - **Height / length (cm):** 76.0

#### TEMPERATURE
- **axillary:** 36°C
- **rectal:** 36.2°C

#### BLOOD GLUCOSE (mmol/L):
- **bolus of 75 eHaemoglobin'), g
- **Oral**
- **NGT**
- **IV**

#### DEHYDRATION:
- **Watery diarrhoea?** **Yes**
  - **Blood in stool?** **No**
  - **Vomiting?** **No**

#### FEEDING
- Begin feeding with F-75 as soon as possible.
  - **New weight:** __________ kg
  - **Amount for 2-hourly feedings:** __________ ml F-75
- **Time first fed:** 08.00

#### ANTIBIOTICS (All receive)
- **gentamicin:** IV
- **ampicillin:** IV
- **Then amoxicillin:** Oral (grape)

#### SIGNS OF SHOCK
- **Lethargic/unconscious**
- **Cold hands**
- **Slow capillary refill (> 3 seconds)**
- **Weak or fast pulse**

#### SIGNS OF MEASLES
- **Yes**

#### FEED INTAKE CHART

<table>
<thead>
<tr>
<th>Time</th>
<th>F-75</th>
<th>F-75</th>
<th>F-75</th>
<th>F-75</th>
<th>F-75</th>
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<tbody>
<tr>
<td>08.00</td>
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<tr>
<td>08.00</td>
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</tr>
</tbody>
</table>

*Only ReSoMal if any signs of over-hydration: Fast breathing, increasing pulse and resp. rates, engorging jugular veins, puffing of eyelids.
* Stop ReSoMal if two or more signs of hydration. Caution: judgement for each case is needed.
5. **MONITOR PULSE, RESPIRATION AND TEMPERATURE, AND WATCH FOR DANGER SIGNS**

Measure pulse, respiration and temperature every 4 hours, before feeding. This monitoring is very important because an increase in pulse rate or respiratory rate can signal a problem such as an infection, or heart failure from overhydration due to feeding or rehydrating too fast. An increase or decrease in temperature to above or below normal can indicate infection.

It is critical to monitor the child closely (every 4 hours) during initial treatment and during transition to free feeding on F-100. After the child is stable and feeding freely on F-100, you may decrease monitoring of pulse, respiration and temperature to once a day as long as the child is gaining weight. If there is no weight gain, or if the child loses weight, resume monitoring every 4 hours.

Record results of monitoring on the monitoring record, which is the third page of the CCP. There is space on the monitoring record in which to record six readings per day on pulse, respiration and temperature for a number of days. It is convenient to keep the pages of a CCP in order on a clipboard. When the first monitoring record is full, simply add another one to the stack.

5.1 **Measure pulse rate**

Find the child’s pulse in one of the following places:

- **Carotid (neck)**
- **Radial (wrist)**
- **Femoral (upper inner thigh)**

Count pulses (beats) per minute, or count pulses per 30 seconds and multiply by 2. Record pulses (beats) per minute on the monitoring record in the CCP.
5.2 Measure respiratory rate

- Watch the child’s chest while the child is quiet.
- Count breaths per minute. Count for a full minute, as breathing may be irregular.
- Look for breathing movement anywhere on the child’s chest or abdomen. Usually you can see breathing movement even when a child is dressed. If you cannot see the movement easily, ask the mother to lift the child’s shirt.
- If the child starts to cry, ask the mother to calm the child before you start counting. Record breaths per minute on the monitoring record of the CCP.

5.3 Take temperature

Steps for taking temperature have been presented in Module 3 on initial management. Rectal temperature is preferred.

A graph is used for recording temperature on the monitoring record so that increases and decreases can easily be seen.

Monitoring the temperature can be done at 4-hour intervals. Along the bottom of the graph, enter the times at which monitoring is done. When a temperature is taken, write an X or large dot on the line above the time and across from the temperature. You may connect the points with a line.

5.4 Recognize danger signs

Changes in pulse, respiration or temperature

The following increases in pulse and respiratory rate should be confirmed in order to determine if there is problem:

- if pulse increases by 25 or more beats per minute, confirm in 30 minutes:
- if respiratory rate increases by 5 or more breaths per minute, confirm in 30 minutes.

If the above increases in pulse and respiratory rates are both confirmed, they are a danger sign. Together, these increases suggest an infection, or heart failure from overhydration due to feeding or rehydrating too fast. Stop feeds and rehydration solution for malnutrition (ReSoMal), and slow fluids. Call the physician for immediate review.

If just the respiratory rate increases, determine if the child has fast breathing, which may indicate pneumonia. If the child is from 2 up to 11 months old, a rate of 50 breaths per minute or more is considered fast. If the child is 12 months up to 5 years old, a rate of 40 breaths per minute or more is considered fast.

If just the pulse increases, there is no cause for concern, as the pulse may increase for many reasons, such as fear or crying.
<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Normal pulse rate (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1</td>
<td>100–160</td>
</tr>
<tr>
<td>1 to 3</td>
<td>90–150</td>
</tr>
<tr>
<td>3 to 6</td>
<td>80–140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Normal respiration rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2 months</td>
<td>&lt; 60 breaths/minute</td>
</tr>
<tr>
<td>2 to 11 months</td>
<td>&lt; 50 breaths/minute</td>
</tr>
<tr>
<td>1 to 5 years</td>
<td>&lt; 40 breaths/minute</td>
</tr>
</tbody>
</table>


If a child’s rectal temperature drops below 35.5°C, or the axillary temperature drops below 35°C, the child is hypothermic and needs rewarming. Have the mother hold the child next to her skin or use a heater or lamp with caution. Be sure the room is warm (28–32°C if possible) and the child is covered. Hypothermia may be a sign of infection. If the temperature drops suddenly, call the physician for immediate review.

Increases in temperature can also indicate infection. If there is a sudden increase or decrease in temperature, call the physician for immediate review. Monitor and record temperature in the monitoring record of the CCP to visualize changes in temperature more easily.

**Other danger signs**

Watch carefully any child with an infection such as pneumonia or sepsis, ear infection, or urinary tract infection. Keep children with infections near the nurses’ station so that they can be easily watched. If a child has diarrhoea or a rash, keep the child separate from the other children, if possible. For example, isolate the child behind a screen or in a separate area. Take special care with handwashing after handling these children.

Call the physician immediately when these danger signs appear.

In addition to watching for increasing pulse or respiration rates and changes in temperature, watch for other danger signs such as:

- anorexia (loss of appetite)
- change in mental state (e.g. becomes semi-conscious or unconscious)
- jaundice (yellowish skin or eyes)
- cyanosis (tongue/lips turning blue from lack of oxygen)
- difficulty breathing
- difficulty feeding or waking (drowsy)
- abdominal distension
- new oedema
- large weight changes
- increased vomiting
- petechiae (bruising).

See Web Annex for a summary of danger signs to look out for during inpatient care.
6. PROVIDE CONTINUING CARE AT NIGHT

Many deaths in severely malnourished children occur at night because a feed is omitted, or the child becomes uncovered and cold. It is extremely important that enough staff are assigned to work at night, and that they are properly trained.

Night staff must:

• keep each child covered to prevent hypothermia;
• provide hats – most of the heat is lost from the head;
• feed each child according to schedule during the night (at first this will be every 2 hours) – this will involve gently waking the child to feed;
• take 4-hourly measurements of pulse, respiration and temperature;
• watch carefully for danger signs and call a physician if necessary.
The following questions relate to the example of Bianca’s monitoring record on the next page. She is 2 years old.

1. What were the child’s temperature, respiratory rate, and pulse rate at 14:00 on Day 2?

2. What is the trend for the child’s temperature over Days 1 through 3? (Choose one answer.)
   a. There are sharp increases in temperature.
   b. The temperature rises slowly and steadily.
   c. The temperature stays below normal.

3. Has there been any significant change in the child’s pulse rate? If so, when?

4. Has there been any significant change in the child’s respiratory rate? If so, when?

5. At 22:00 the nurse finds that the child has a rectal temperature of 38°C, a pulse rate of 100 beats per minute, and a respiratory rate of 45 breaths per minute (confirmed after 30 minutes). Enter this information on Bianca’s monitoring record.

6. Is there a danger sign or signs? If so, what are they? Should the nurse call a physician?

Check your own answers to this exercise by comparing them to the answers given at the end of the module.
### Monitoring Record

Monitor respiratory rate, pulse rate, and temperature **every 4 hours** until after transition to RUTF or F-100. Then monitoring can be less frequent (e.g., twice daily).

#### Respiratory Rate

<table>
<thead>
<tr>
<th>Day</th>
<th>10</th>
<th>14</th>
<th>18</th>
<th>22</th>
<th>02</th>
<th>06</th>
<th>10</th>
<th>14</th>
<th>18</th>
<th>22</th>
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<th>10</th>
<th>14</th>
<th>18</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>10</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>02</td>
<td>06</td>
<td>10</td>
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<td>02</td>
<td>06</td>
<td>10</td>
<td>14</td>
<td>18</td>
<td>22</td>
</tr>
</tbody>
</table>

#### Pulse Rate

**Normal pulse:**
- 0 to 1 years: 100 to 160 beats/min
- 1 to 3 years: 90 to 150 beats/min
- 3 to 6 years: 80 to 140 beats/min

**Normal respiration rate**
- <2 months: <60 breaths/min
- 2 to 11 months: <50 breaths/min
- 1 to 5 years: <40 breaths/min

#### Temperature

<table>
<thead>
<tr>
<th>Day</th>
<th>10</th>
<th>14</th>
<th>18</th>
<th>22</th>
<th>02</th>
<th>06</th>
<th>10</th>
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<th>06</th>
<th>10</th>
<th>14</th>
<th>18</th>
<th>22</th>
</tr>
</thead>
</table>
In this exercise you will make entries on a daily care page and monitoring record of a CCP. You will use the daily care page that you set up for Lani in Exercise B. A blank monitoring record and a 24-hour food intake chart are provided below.

Pretend that you are the nurse who cares for Lani on her first day in the ward. At the following times you give Lani her medications or monitor her progress. Make appropriate entries on the daily care page and monitoring record: for example, enter your initials or record results of monitoring. Additional information about feeding is provided in italics. You do not need to record this information.

**Day 1**

**08:00**  
Lani is given her first feed of F-75. It is recorded on the 24-hour food intake chart.

You give Lani 1.75 ml ampicillin and 1.3 ml gentamicin through her heparinized IV cannula.

You also give her 200 000 IU vitamin A.

You put one drop of tetracycline and one drop of atropine in her left eye.

Her ear is draining, and you gently wick it with a clean cloth.

Since Lani is very ill, you do not bathe her, but apply zinc oxide ointment to the patches of dermatosis, and you cover the raw areas with gauze.

**09:00**  
You check Lani’s pulse, respiratory rate, and temperature. Her pulse rate is 100 beats per minute, her respiratory rate is 35 breaths per minute, and her rectal temperature is 38°C.

**10:00**  
Lani is given her second feed of F-75. It is recorded on the 24-hour food intake chart.

**12:00**  
Lani is given her third feed of F-75. It is recorded on the 24-hour food intake chart.

**13:00**  
You check Lani’s pulse, respiratory rate, and temperature. Her pulse rate is 105 beats per minute, her respiratory rate is 35 breaths per minute, and her rectal temperature is 38°C.
14:00  Lani is given her fourth feed of F-75. It is recorded on the 24-hour food intake chart.

You give Lani 1.75 ml ampicillin IV.

You put one drop of tetracycline and one drop of atropine in her left eye.

15:00  The shift changes. Now pretend that you are the nurse on the next shift.

16:00  Lani is given her fifth feed of F-75. It is recorded on the 24-hour food intake chart.

17:00  You check Lani’s pulse, respiratory rate, and temperature. Her pulse rate is 110 beats per minute, her respiratory rate is 35 breaths per minute, and her rectal temperature is 37.8°C.

18:00  Lani is given her sixth feed of F-75. It is recorded on the 24-hour food intake chart.

**Answer the following questions:**

1. At 20:00 Lani will be fed again. At that time what else should be given to Lani?

2. When should Lani’s respiratory rate, pulse rate, and temperature next be monitored?

3. In addition to feeding, what should be done for Lani at 02:00?

When you have completed this exercise, please discuss your answers with a facilitator.
In this exercise you will review several monitoring records and identify any danger signs.

**Case 1: Lani**

You will remember that Lani was admitted with an ear infection and fever. You began Lani’s monitoring record in the last exercise. Lani’s continuing monitoring record for the first 48 hours is on the next page. Review her monitoring record; then answer the questions below.

**1a.** What happens to Lani’s temperature at 05:00 on Day 2?

**1b.** Is this temperature change a danger sign? Why or why not?

**1c.** What might be a cause of the temperature change?

**1d.** Do Lani’s pulse and respiratory rates indicate any danger signs?

**1e.** What should be done for Lani at 05:00?
NAME: Lani | M  F | DATE OF BIRTH: | AGE: 18 (months) | DATE OF ADMISSION: | HOSP. ID: 

**MONITORING RECORD**

Monitor respiratory rate, pulse rate, and temperature every 4 hours until after transition to RUTF or F-100. Then monitoring can be less frequent (e.g., twice daily).

<table>
<thead>
<tr>
<th>RESPIRATORY RATE</th>
<th>BREATHS/MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 33 35 35 30 35 35 32 35 32 35 35</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PULSE RATE</th>
<th>BEATS/MINUTE</th>
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<table>
<thead>
<tr>
<th>TEMPERATURE</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>TIME</th>
<th>DAILY CARE</th>
<th>DAY 1</th>
<th>DAY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 13 17 21 01 05</td>
<td>09 13 17 21 01 05</td>
<td></td>
</tr>
</tbody>
</table>

**Danger Signs:** Watch for increasing pulse and respirations, fast or difficult breathing, sudden increase or decrease in temperature, rectal temperature below 35.5°C, and other changes in condition (see Monitoring Danger Signs during Inpatient Management of Severe Acute Malnutrition Job Aid).

**Normal pulse:**
- 0 to 1 years: 100 to 150 beats/min
- 1 to 3 years: 90 to 150 beats/min
- 3 to 6 years: 80 to 140 beats/min

**Normal respiration rate:**
- <2 months: <60 breaths/min
- 2 to 11 months: <50 breaths/min
- 1 to 5 years: <40 breaths/min
Case 2: Carla

Carla is 2 years old and was admitted recently with frequent watery diarrhoea. She was given ReSoMal and F-75. She did not take enough F-75 by mouth, so now she is being fed by nasogastric (NG) tube. She still has some diarrhoea and is given ReSoMal after each loose stool. Special attention must be given as she is still weak and cannot eat properly. Review Carla’s monitoring record on the next page and answer the questions below.

2a. Does Carla’s temperature graph indicate any danger sign? If yes, what is the danger sign?

2b. Do Carla’s pulse and respiratory rates indicate any potential danger sign? If yes, what is the danger sign?

2c. What should be done in 30 minutes?

2d. In 30 minutes, Carla’s pulse rate is 125 and her respiratory rate is 45. What should the nurse do?

2e. What is a possible reason for the increase in Carla’s pulse and respiratory rates?
NAME__________ M F DATE OF BIRTH___________AGE ________ months DATE OF ADMISSION___________ HOSP. ID: ________

MONITORING RECORD
Monitor respiratory rate, pulse rate, and temperature every 4 hours until after transition to RUTF or F-100. Then monitoring can be less frequent (e.g., twice daily).

<table>
<thead>
<tr>
<th>Time</th>
<th>Day</th>
<th>RESPIRATORY RATE</th>
<th>PULSE RATE</th>
<th>TEMPERATURE</th>
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<tbody>
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</table>

Carla 2 years

<table>
<thead>
<tr>
<th>Time</th>
<th>Day</th>
<th>RESPIRATORY RATE</th>
<th>PULSE RATE</th>
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<tr>
<td>10.14</td>
<td>2</td>
<td>30</td>
<td>80</td>
<td>39.5</td>
</tr>
<tr>
<td>14.18</td>
<td>2</td>
<td>30</td>
<td>80</td>
<td>39.0</td>
</tr>
<tr>
<td>18.22</td>
<td>2</td>
<td>35</td>
<td>80</td>
<td>38.5</td>
</tr>
<tr>
<td>22.02</td>
<td>2</td>
<td>35</td>
<td>80</td>
<td>38.0</td>
</tr>
<tr>
<td>02.09</td>
<td>2</td>
<td>40</td>
<td>80</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**Danger Signs:** Watch for increasing pulse and respirations, fast or difficult breathing, sudden increase or decrease in temperature, rectal temperature below 35.5°C, and other changes in condition (see Monitoring Danger Signs during Inpatient Management of Severe Acute Malnutrition Job Aid).

<table>
<thead>
<tr>
<th>Normal pulse:</th>
<th>Normal respiration rate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1 years</td>
<td>&lt;2 months: &lt;60 breaths/min</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>2 to 11 months: &lt;50 breaths/min</td>
</tr>
<tr>
<td>3 to 6 years</td>
<td>1 to 5 years: &lt;40 breaths/min</td>
</tr>
</tbody>
</table>
Case 3: Bijouli

Bijouli is 20 months old. He is severely wasted but has no obvious complications or infections on admission. He is prescribed a routine course of amoxicillin for 5 days. Review Bijouli’s monitoring record on the next page and answer the questions below.

3a. What happens to Bijouli’s temperature during the night of Day 2 and morning of Day 3? Does this indicate a danger sign?

3b. Does the record of Bijouli’s pulse rates suggest any danger sign? Why or why not?

3c. Does the record of Bijouli’s respiratory rates suggest any problem? Why or why not?

3d. Is medical intervention required?

3e. The nurse notes that Bijouli has chest indrawing. What could be the problem? What treatment should be given to Bijouli?


When you have completed this exercise, please discuss your answers with a facilitator.
**NAME:** Bijouli  
**DATE OF BIRTH:** _______  
**AGE:** 20 (months)  
**DATE OF ADMISSION:** _______  
**HOSP. ID:** _______

**MONITORING RECORD**

Monitor respiratory rate, pulse rate, and temperature **every 4 hours** until after transition to RUTF or F-100. Then monitoring can be less frequent (e.g., twice daily).

<table>
<thead>
<tr>
<th>RESPIRATORY RATE</th>
<th>Breaths/minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PULSE RATE</th>
<th>Beats/minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPERATURE</th>
<th>39.5</th>
<th>39.0</th>
<th>38.5</th>
<th>38.0</th>
<th>37.5</th>
<th>37.0</th>
<th>36.5</th>
<th>36.0</th>
<th>35.5</th>
<th>35.0</th>
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</thead>
<tbody>
<tr>
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<td>5.0</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Respiratory Rate:**
- <2 months: 40–60 breaths/min
- 2 to 11 months: 30–50 breaths/min
- 1 to 5 years: 20–40 breaths/min

**Pulse Rate:**
- 0 to 1 years: 100 to 160 beats/min
- 1 to 3 years: 90 to 150 beats/min
- 3 to 6 years: 80 to 140 beats/min

**Danger Signs:** Watch for increasing pulse and respirations, fast or difficult breathing, sudden increase or decrease in temperature, rectal temperature below 35.5°C, and other changes in condition (see Monitoring Danger Signs during Inpatient Management of Severe Acute Malnutrition Job Aid).

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>19</td>
<td>18</td>
<td>22</td>
</tr>
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<td>19</td>
<td>06</td>
<td>02</td>
<td>06</td>
</tr>
<tr>
<td>18</td>
<td>22</td>
<td>02</td>
<td>06</td>
</tr>
<tr>
<td>22</td>
<td>06</td>
<td>02</td>
<td>06</td>
</tr>
<tr>
<td>06</td>
<td>10</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>18</td>
<td>22</td>
</tr>
</tbody>
</table>

Normal pulse: 0 to 1 years: 100 to 160 beats/min  
1 to 3 years: 90 to 150 beats/min  
3 to 6 years: 80 to 140 beats/min

Normal respiration rate:  
<2 months: <60 breaths/min  
2 to 11 months: <50 breaths/min  
1 to 5 years: <40 breaths/min
7. **WEIGH THE CHILD DAILY AND MAINTAIN WEIGHT CHART**

How to weigh the child was described in Module 2 on principles of care. Remember to weigh the child at about the same time each day, about 1 hour before or after a feed.

After weighing the child each day, record the child’s weight on the daily care page of the CCP. Then plot the child’s weight on the weight chart included in the CCP. The weight chart will visually show:

- the child’s progress in weight gain;
- any loss of weight due to oedema;
- failure to improve (in the stabilization phase, the child is not expected to gain weight – weight monitoring in this phase is crucial to monitor fluid balance).

An example of a completed weight chart is shown on the next page. Study the example as you read the instructions below for preparing and maintaining a weight chart.

- Label the vertical axis of the graph with a range of weights that includes the child’s starting weight and allows for some weight loss as well as weight gain. Each horizontal line on the graph should represent a difference of 0.1 kg.
  - If the child has no oedema, label the axis so that the starting weight will be near the bottom, but allow a little space below for possible weight loss.
  - If the child has oedema, allow more space for weight loss (up to 30%) by placing the starting weight higher on the axis. As a general guideline, allow for up to:
    - 1 kg weight loss if mild (+) or moderate (++) oedema
    - 2 kg weight loss if severe (+++) oedema and child is < 7 kg
    - 3 kg weight loss if severe (+++) oedema and child is > 7 kg.

- Use the appropriate reference card (presented in Module 2) to determine the child’s desired discharge weight-for-height Z-score (i.e. –2 SD, which is the discharge criterion when there is no outpatient programme on management of severe acute malnutrition). Mark the desired discharge weight with a horizontal line across the chart. This is not required if the child will be discharged to an outpatient programme to continue treatment of severe acute malnutrition.

- Each day, plot the child’s weight on the chart. Plot the starting weight above Day 1, the next day above Day 2, etc. Mark each point with an X or large dot so that it shows up clearly.

- Connect the points for the daily weights to see the child’s progress.

- To highlight the day that RUTF is begun (the first day of transition), draw and label an arrow pointing to the weight for that day.

The chart below shows a child who lost a little weight during the first few days on F-75 but then began to gain steadily after transition to RUTF.
NAME_________________________ M F DATE OF BIRTH___________AGE ______(months) DATE OF ADMISSION___________HOSP. ID:

**WEIGHT CHART**

Weight on admission: **6.0** kg

Height/length on admission: **69** cm

MUAC on admission: _____ mm

Bilateral pitting oedema on admission: 0 + ++ +++

Weight at transfer to OTP: _____ kg

Enter likely range of weights on the vertical axis in an appropriate scale (e.g., each row representing 0.1 kg). Allow rows below the starting weight in case weight decreases; weight may decrease by as much as 30% if the child has severe oedema.
An example of a partially completed weight chart for a girl with mild (+) oedema is on the next page. The child’s starting weight is 5.3 kg. Since she has mild oedema, space should be allowed for a 1 kg weight loss. To allow for this loss, the vertical axis is labelled so that 4.0 kg is at the bottom.

1. Define her desired discharge weight. Enter it in the chart and mark it with a bold line on the chart.

2. Plot the weights for the next several days on the chart and connect them with a line:
   - Day 11 weight: 5.1 kg
   - Day 12 weight: 5.2 kg
   - Day 13 weight: 5.3 kg

3. What was the child’s lowest weight? On what day did this occur?

4. Why did the child lose weight?

5. Has she made progress?

Check your own answers to this exercise by comparing them to those given at the end of the module.
NAME_________________________ M F DATE OF BIRTH_________AGE ______(months) DATE OF ADMISSION____________ HOSP. ID:

WEIGHT CHART

Weight on admission: _5.3_ kg

Height/length on admission: _67_ cm

MUAC on admission: _____ mm

Bilateral pitting oedema on admission: 0 ++ +++

Weight at transfer to OTP: _____ kg

Enter likely range of weights on the vertical axis in an appropriate scale (e.g., each row representing 0.1 kg). Allow rows below the starting weight in case weight decreases; weight may decrease by as much as 30% if the child has severe oedema.
In this exercise you will prepare a weight chart for Daniel, a boy admitted with oedema of both feet (+). Daniel’s weight on admission is 10.1 kg. His height is 87 cm. Enter this information in the blanks beside the weight chart on the next page.

1. Knowing that there is no outpatient care facility close to the community, what is Daniel’s desired discharge weight? Enter this weight in the appropriate blank beside the weight chart and mark this with a bold line across the chart.

2. When labelling the vertical axis of Daniel’s weight chart, how much weight loss should you allow for?

3. Label the vertical axis of Daniel’s weight chart. Be sure that the range of weights includes the starting weight and the discharge weight and allows for weight loss. Let each row of the weight chart represent 0.1 kg.

4. Plot Daniel’s admission weight (10.1 kg) on the chart above Day 1. Then plot the weights given below for Days 2–14. Connect the points.

   - Day 2: 10.5 kg
   - Day 3: 9.8 kg
   - Day 4: 9.6 kg
   - Day 5: 9.4 kg
   - Day 6 (transition to F-100): 9.2 kg
   - Day 7 (transition): 9.2 kg
   - Day 8 (transition): 9.3 kg
   - Day 9 (free feeding on F-100): 9.4 kg
   - Day 10: 9.6 kg
   - Day 11: 9.7 kg
   - Day 12: 9.6 kg
   - Day 13: 9.8 kg
   - Day 14: 9.9 kg

5. Summarize Daniel’s weight changes briefly in words.

6. Is Daniel’s slight weight loss on Day 12 a reason for concern? Why or why not? What are some possible causes of the weight loss?
<table>
<thead>
<tr>
<th>Day</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (use appropriate scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Enter likely range of weights on the vertical axis in an appropriate scale. Allow rows below the starting weight in case weight decreases; weight may decrease by as much as 30% if the child has severe oedema.
ANSWERS TO SHORT ANSWER EXERCISES

Answers, page 3

1. Answers b, c, and d should be ticked.
2. Answers a, b, c, and e should be ticked.
3. Answer b should be ticked. Answers a and d may be appropriate in certain circumstances. If the mother is extremely tired, it may be best to let her sleep and feed the child yourself. If several mothers can be trusted to take turns feeding and sleeping, then answer d may be appropriate.

Answer c would make the mother feel guilty and afraid and would never be appropriate.

Answers, page 7

1. Yes, the child should be given a dose of 200 000 IU on Day 15.
2. At the end of rehabilitation only, 100 000 IU oral.
3. a. Yes, on Day 1 give 200 000 IU, oral dose.
   b. Give the second dose on Day 2. Give 200 000 IU.
4. a. Yes, Dalia should be given a dose on Day 1 at the hospital since she has corneal clouding.
   b. No, she should not be given a dose on Day 2 because that would be the third day in a row to receive vitamin A.
   c. Yes, she should be given a dose on Day 15.

If you have any questions about the vitamin A schedule, please see a facilitator.

Answers, page 18

1. 36.4°C, 92 beats/minute, 30 breaths/minute.
2. Answer b should be ticked.
3. There has been no significant change in the child’s pulse rate.
4. Yes, the respiratory rate increased from 35 to 40 beats per minute between 10:00 and 14:00 on Day 4.
5. A temperature of 38°C, pulse rate of 100 beats/minute, and respiratory rate of 45 breaths/minute should be entered on the monitoring record.
6. Yes, there is a danger sign. There is a sudden increase in temperature. Also, the respiratory rate has again increased by 5 breaths/minute and is at 45, which is considered fast breathing for a 2-year-old. The physician should be called.

In this case, there is no possible referral for management of severe acute malnutrition through outpatient care.
1. See chart on page 31.
2. Answers to be plotted on the chart.
3. 4.8 kg on days 5 and 6.
4. The child lost weight due to loss of oedema fluid.
5. Yes, the child has made progress in two ways. First, she lost her oedema, and her weight fell to her true weight of 4.7 kg. Then she put on new tissue and her weight increased to 5.3 kg on Day 13.
For more information, please contact:
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World Health Organization
Avenue Appia 20
CH-1211 Geneva 27
Switzerland
Email: nutrition@who.int
Website: https://www.who.int/health-topics/nutrition