MODULE 5
DAILY CARE

Government of Sudan

Training Course on Inpatient Management of Severe Acute Malnutrition

Children 6–59 Months with SAM and Medical Complications

June 2011

This modified version of the 2002 World Health Organisation's *Training Course on Inpatient Management of Severe Acute Malnutrition (SAM)* is the practical application of the 2009 Government of Sudan (GOS) Federal Ministry of Health (FMOH) *Interim Manual Community-Based Management of Severe Acute Malnutrition (November 2009).* The training course is made possible by the generous support of the American people through the support of the Office of U.S. Foreign Disaster Assistance, Bureau for Democracy, Conflict and Humanitarian Assistance, and the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, United States Agency for International Development (USAID), under terms of Cooperative Agreement No. AID-OAA-A-11-00014, through the FANTA-2 Bridge, managed by FHI 360. The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government.

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Contents

Acronyms and Abbreviations

AIDS	acquired immune deficiency syndrome
ART	antiretroviral therapy
AWG	average daily weight gain
BMI	body mass index
cm	centimetre(s)
CMAM	Community-Based Management of Acute Malnutrition
CMV	combined mineral and vitamin mix
dl	decilitre(s)
ENA	Essential Nutrition Actions
FMOH	Federal Ministry of Health
g	gram(s)
GOS	Government of Sudan
Hb	haemoglobin
HFA	height-for-age
HIV	human immunodeficiency virus
IGF	insulin growth factor
IM	intramuscular
IMNCI	Integrated Management of Neonatal and Childhood Illness
IU	international unit(s)
IV	intravenous
IYCF	infant and young child feeding
kcal	kilocalorie(s)
kg	kilogram(s)
L	litre(s)
LOS	length of stay
M&R	monitoring and reporting
MAM	moderate acute malnutrition
ml	millilitre(s)
mm	millimetre(s)
MUAC	mid-upper arm circumference
µg	microgram(s)
NG	nasogastric
NGT	nasogastric tube
OPD	outpatient department
ORS	oral rehydration solution
PCV	packed cell volume
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission of HIV
QI	quality improvement
ReSoMal	Rehydration Solution for Malnutrition
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SFP	supplementary feeding programme
TB	tuberculosis
UNSCN	United Nations Standing Committee on Nutrition
WFA	weight-for-age
WFH	weight-for-height
WFP	World Food Programme
WHO	World Health Organisation
WHZ	weight-for-height z-score

Introduction

Attentive and consistent daily care will make the difference in the recovery of a child with severe acute malnutrition (SAM). The routine of daily care in Inpatient Care for children 6–59 months with SAM with medical complications 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 mothers[1].

Weighing and measuring tasks were described in **Module 2, Principles of Care**. Feeding tasks were described in **Module 4, Feeding**. This module describes other aspects of daily care. You will practise tasks related to daily care during ward visits. Written practice in the module focuses on completing and interpreting the Daily Care, Monitoring Record, and Weight Chart pages of the Inpatient Management Record.

Learning Objectives

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

- Handling a child with SAM with poor appetite and medical complications
- Caring for the skin and bathing
- Giving prescribed antibiotics and other medications and supplements
- Caring for the eyes
- Monitoring pulse, respirations and temperature, and watching for danger signs
- Continuing care at night
- Testing the appetite with ready-to-use therapeutic food (RUTF)
- Preparing and maintaining a weight chart

[1] The term 'mother' is used throughout this module. However, it is understood that the person who is responsible for the care of the child might not always be that child's mother, but rather some other caregiver. However, for the sake of readability, 'mother' means 'mother/caregiver' throughout this module, 'she' means 'she or he' and 'her' means 'her or his'.

1.0 Handling a Child with SAM with Poor Appetite and Medical Complications

Children with SAM must be handled very gently, especially at the beginning of their care. The body of a child with SAM is fragile and bruises easily. The child needs all his or her energy to recover, so he or she 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.

Through tone of voice, gentle manner and caring attitude, nurses set a good example for the mothers of how to provide tender, loving care. Good nurses also win the trust of mothers and make them more likely to stay with their children in the hospital for the necessary length of time. 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, preferably out of earshot and sight of the other children.

Nurses can set a good example by:

- Removing the child's clothes gently
- Bathing the child gently
- Talking softly to the child while giving treatments
- Holding the child close while feeding
- Encouraging a mother who is helping to provide care
- Comforting a child after a painful procedure

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, Involving Mothers in Care**.

SHORT ANSWER EXERCISE

Check 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 he or she 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 or him 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 against the answers given on page 39 at the end of the module.

Example of Daily Care page of Inpatient Management Record

The next page shows an example of a completed Daily Care page of the Inpatient Management Record. When daily care tasks are performed, the nursing staff should record their signature on this page.

Tell a facilitator when you have reached this point in the module. When everyone is ready, your facilitator will present a brief demonstration on how to use the Daily Care page. In the meantime, you may continue reading.

Name: BIANCA Sex: M (F) Age: _____ Date of admission: _____ Time: _____ Hospital ID number: _____ Page 2 of 6

DAILY CARE

	Week 1							Week 2							Week 3						
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date	8 Jan	9 Jan	10 Jan	11 Jan	12 Jan	13 Jan	14 Jan	15 Jan	16 Jan												
Daily weight (kg)	8.80	8.80	8.75	8.80	8.85	8.85	8.90	8.95	9.0												
Weight gain (g/kg)	*Calculate when on RUTF or F-100*					–	5.6	5.6	5.6												
Bilateral pitting oedema 0 + ++ +++	0	0	0	0	0	0	0	0	0												
Diarrhoea (D) or Vomit (V)	D	D	0	0	0	0	0	0	0												
FEED PLAN: Type of feed	F-75	F-75	F-75	F-75	F-75	F-100	F-100	RUTF	RUTF												
# daily feeds	12	12	8	6	6	6	6	6	6												
Volume to give per feed	95	95	145	195	195	195	195	195+	200+												
Total volume taken (ml)	910	1140	1130	1120	1170	1170	1170	2.8 p	2.8 p												
NGT *Y N*	N	N	N	N	N	N	N	N	N												
Breastfeeding *Y N*	Y	Y	Y	Y	Y	Y	Y	Y	Y												
Appetite test with RUTF *F failed P passed*	--	--	--	--	--	F	F	P	P												
ANTIBIOTICS	*List prescribed antibiotics in left column. Allow one row for each daily dose. Draw a box around days/times that each drug should be given. Sign when given.*																				
Amoxicillin-clavulanic acid 8:00	AC	AC	AC	AC	AC																
16:00	BP	BP	BP	BP	BP																
24:00	PA	PA	PA	PA	PA																
ANTIMALARIAL (Note type of drug)																					
FOLIC ACID (Single dose)	5 mg AC																				
VITAMIN A (Treatment dose on days 1, 2, 15; shade days 3–14. Preventive dose after week 4 + oedema free)																*Preventive vitamin A dose is given after 4 weeks and when oedema free.*					
ANTIHELMINTHIC (Give on week 2 presumptive dose, unless severe infestation)	AC	AC							*If severe infestation: give immediately. If presumptive treatment: give after 1 week. See dosage on Job Aid Routine Medicine Protocols.*												
IRON Give 3mg/kg/day, 2x daily, after 2 days on F-100. Do not give when on RUTF. Give after malaria treatment.																					
8:00	AC	AC	AC	AC	AC	AC	AC				*After 7–10 days, eye drops are no longer needed.*										
EYE INFECTIONS 16:00	HP	HP	HP	HP	HP	HP	HP														
Tetracycline ointment 2x daily or 20:00	BP	BP	BP	BP	BP	BP	BP														
Chloramphenicol 1 drop 4x daily 02:00	BP	BP	BP	BP	BP	BP	BP														
Corneal clouding and corneal ulceration:																					
As above, plus atropine 1 drop 3x daily																					
Dermatosis 0 + ++ +++	+++	+++	+++	+++	+++	++	+	0													
Ear, mouth or throat problems																					
Bathing, 1% permanganate	VR	VR	VR	VR	VR	VR	VR	VR	VR												

2.0 Caring for the Skin and Bathing

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

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

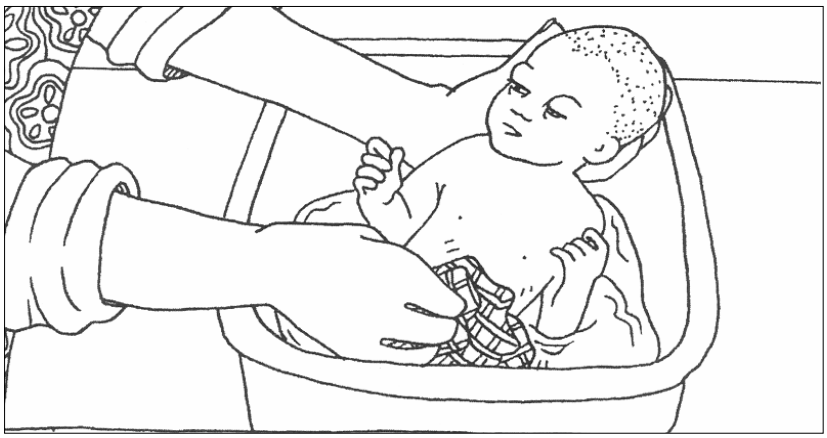
If the child has severe (+++) dermatosis, bathe for 10–15 minutes/day in 1% potassium permanganate solution. To make a 1% solution, dissolve a crystal in enough water so that the colour is slightly purple and still transparent. Sponge the solution onto affected areas while the child is sitting in a basin. This dries the lesions, helps prevent loss of serum and inhibits infection. Sign on the Daily Care page of the Inpatient Management Record when the bath is done. Circle '1% permanganate' if it is used. (See example on the previous page.)

If the child has severe dermatosis but is too sick to be bathed, dab 1% potassium permanganate solution on the bad spots, and dress oozing areas with gauze to keep them clean.

If potassium permanganate solution is not available, affected areas may be dabbed with gentian violet.

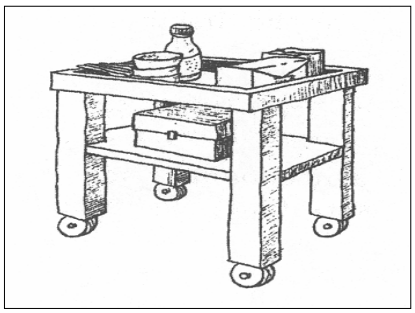
Apply barrier cream to raw areas. Useful ointments are zinc and castor oil ointment, petroleum jelly or paraffin gauze dressing. These help relieve pain and prevent infection. Use a different tube of ointment for each child to avoid spreading infection. If the nappy (diaper) area becomes colonised with *candida*, use nystatin ointment or cream after bathing. (Candidiasis is also treated with oral nystatin as described on pages 104 and 185 in the Government of Sudan Interim Manual: Community-Based Management of Severe Acute Malnutrition, Version 1.0 [November 2009] [the CMAM Manual].)

Leave off nappies so the affected area can dry. Be sure to dry the child well after a bath and wrap the child warmly.



3.0 Giving Prescribed Antibiotics and Other Medications and Supplements

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 Inpatient Management Record and gives the child any medication needed at that time. In addition, he or she may monitor respirations, pulse and temperature; give eye drops; etc. The needed equipment and medications are kept on the trolley.



3.1 Giving Antibiotics as Prescribed

Note: The prescription of appropriate antibiotics has already been covered in **Module 3, Initial Management**. This section is about administering them.

When antibiotics are prescribed, list them on the Daily Care page of the Inpatient Management Record. 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 Inpatient Management Record. Whenever a dose is given, sign on the Daily Care page.

Look at the example of the Daily Care page on page 5. 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 child with SAM 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 Giving Folic Acid

Folic acid is a vitamin of the B complex that is important for treating and preventing anaemia and repairing the damaged gut. Each child should be given a large single dose (5 mg) on day 1. No additional folic acid is provided if the child is on F-75 (1 L provides 350 µg), F-100 (1 L provides 399 µg) or RUTF (200 g provides 420 µg).

In case combined mineral and vitamin mix (CMV) is not being used to make F-75 and F-100, 1 mg of folic acid must be provided daily but separately from the feeds. Sign on the Daily Care page of the Inpatient Management Record when folic acid is given.

3.3 Giving Vitamin A

Preventive Dosages of Vitamin A

Children with SAM are at high risk of blindness due to vitamin A deficiency. A single dose of vitamin A should be given to all children with SAM after 4 weeks in treatment, when oedema has resolved or upon discharge, unless there is definite evidence that a dose has been given in the past month and the child has no signs of eye problems.

Timing and Oral Preventive Dosages of Vitamin A

	Timing	Age	Dosage (IU)
All children*	After 4 weeks or upon discharge Child is free of oedema	< 6 months	50,000
		6–12 months	100,000
		> 12 months	200,000

* Unless definite evidence of a dose in the last month and no eye signs.

Treatment Dosages of Vitamin A

Treatment dosages of vitamin A are given if:

- The child has visible clinical signs of vitamin A deficiency: Bitot's spots, corneal clouding or corneal ulceration *or*
- The child has measles now or has had measles in the past 3 months.

The treatment doses are given regardless the SAM status, on day 1, day 2 and at least 2 weeks later, preferably on day 15.

Timing and Oral Treatment Dosages of Vitamin A

	Timing	Age	Dosage (IU)
Only children with eye signs or recent measles	Day 1	< 6 months	50,000
		6–12 months	100,000
		> 12 months	200,000
	Day 2	Same age-specific dose	
	Day 15	Same age-specific dose	

Oral treatment with vitamin A is standard. However, for children with severe anorexia, oedema or septic shock, IM treatment is preferred for the first dose only.

For oral administration, an oil-based formulation is preferred. For IM treatment, only water-based formulations should be used. The IM dosages are 100,000 IU (water-based) except for children under age 6 months, who should be given 50,000 IU.

Enter the dose in the first column of the Daily Care page, and sign when 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.

On the Inpatient Management Record, shade out the boxes for day 1, day 2 and day 15 vitamin A if these doses are not needed (i.e., child has no eye signs and no recent measles). Give vitamin A days 1, 2 and 15 if the child is admitted with eye sign or recent measles. Otherwise, give vitamin A in a single dose on week 4 or upon discharge unless there is evidence of a dose having been given in the past month. Never give vitamin A when the child has bilateral pitting oedema, unless there are eye signs of vitamin A deficiency.

SHORT ANSWER EXERCISE

1. Look again at the example of the Daily Care page for Bianca (page 5). Bianca is 2 years old and was admitted with some pus in her left eye. Should she be given a dose of vitamin A on day 15? 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. Should Georgio's first dose of vitamin A be given orally, or by IM injection? What is the dose?

   When and how should Georgio's next dose be given? What is the dose?

4. Dalia (age 20 months) was referred from a health centre where she was given 200,000 IU vitamin A yesterday. She has corneal clouding. Should she be given another dose today, on day 1 at the hospital?

   Should she be given a dose on day 2? On day 15?

Check your own answers to this exercise against those given on page 39 at the end of the module.

3.5 Giving Presumptive Treatment for Worms, and Treating Giardiasis and Amoebiasis

Worms are common in older children that play outside, and they can be a problem in children with SAM. They can cause dysentery and anaemia.

All children over 1 year of age are routinely treated for worms in the rehabilitation phase (at referral to Outpatient Care, or after 2 days going on RUTF or F-100). However, treatment may be started earlier if necessary (e.g., very severe infection with worms).

Similarly, if a child has signs of giardiasis or amoebiasis, the child is treated with metronidazole. (See the CMAM Manual, Annex 8, Drug Dosages of SAM Treatment for Children under 5.)

If the child has severe infection with worms, giardiasis or amoebiasis, record that fact on the Daily Care page, along with the drug(s) given. Sign when drugs are given. If no worms are reported, give drug after 1 week on treatment and sign.

3.6 After 2 Days on F-100, Give Iron Daily; Do Not Give Iron with RUTF

Even if a child is anaemic, he or she should not be given iron until he or she is recovering and has been on F-100 for 2 days (i.e., after 2 days of transition). If given earlier, iron can have toxic effects and promote certain bacteria growth and resistance (e.g., Salmonella sp.). Iron is not given if the child is on RUTF. RUTF contains enough iron to cover the daily corrective needs of the child.

Note: If malaria is confirmed or suspected, the child should be treated for malaria before starting iron therapy.

Calculate and administer the amount needed: Give 3 mg elemental Fe/kg/day in two divided doses. Always give iron orally, never by injection. Preferably give iron between meals using a liquid preparation. Or add iron in the F-100 milk: Crush one tablet of 200 mg iron sulphate in 2–2.4 L of F-100.

Write the dose for the specific child on the Daily Care page of the Inpatient Management Record in the left column. Sign each time on each day that the dose is given. Continue giving iron throughout the hospital stay.

Iron syrup may come in different formulations that affect how much to measure for each dose. The following table shows a common formulation and how much to measure for each of two daily doses so that the child receives approximately 3 mg elemental Fe/kg/day.

Doses of Iron Syrup for a Common Formulation

Weight of child	**Dose of Iron Syrup:** Ferrous Fumarate 100 mg per 5 ml (20 mg elemental iron per ml)
3 up to 6 kg	0.5 ml
6 up to 10 kg	0.75 ml
10 up to 15 kg	1 ml

4.0 Caring for the Eyes

Chloramphenicol or tetracycline eye drops are 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:	Then:
Bitot's spots only (no other eye signs)	No eye drops are needed
Pus or inflammation	Give chloramphenicol or tetracycline eye drops
Corneal clouding and ulceration	Give both: • chloramphenicol or tetracycline (1%) eye drops *and* • atropine (1%) eye drops

Doses are as follows. Instil drops into the affected eye(s):

- chloramphenicol, 1 drop, four times per day, or tetracycline, 1 drop, two times per day, for 7–10 days
- atropine (1%): 1 drop, 3 times per day

If both types of drops are needed, they are given at the same time for convenience. Continue drops for at least 7 days, until all eye signs are gone.

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. Also be sure to wash your 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 normal (0.90%) saline solution, held in place with gauze bandages. The damp pads and bandages will cool the soreness, prevent the child from scratching his or her eyes and promote healing. Change pads and bandages whenever drops are given.

To bandage the eyes:

- Wash your hands.
- Soak eye pads with normal (0.90%) saline solution.
- Place a pad over each affected eye.
- Wrap a gauze bandage over the pads and around the head (not too tight, just tightly enough to hold in place).

Some children with SAM sleep with their eyes open. Nurses should gently close the child's eyes while sleeping to prevent abrasion. Sign on the Daily Care page when eye drops are given. Shade out the boxes when eye drops are no longer needed.

Exercise A

In this exercise, you will decide on treatment for children with various eye signs. For some of the cases, you will need to refer to the *Photographs* booklet. 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.

   On what days should this child receive vitamin A?

   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.

   On what days should this child receive vitamin A?

   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.

   On what days should this child receive vitamin A?

   What eye drops should be given, if any?

4. (No photo) A severely malnourished child (age 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.

   On what days should this child receive vitamin A?

   What eye drops should be given, if any?

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.

   On what days should this child receive vitamin A?

   What eye drops should be given, if any?

6. (No photo) A severely malnourished child (age 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.

   On what days should this child receive vitamin A?

   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.

   On what days should this child receive vitamin A?

   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 Inpatient Management Record. Obtain a blank Daily Care page to use in this exercise. (There should be a supply in your classroom.) When you have completed this exercise, save the Daily Care page for later use in Exercise C.

Case – 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. Her Initial Management page is provided on the next page.

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

8:00, 14:00, 16:00, 20:00, 24:00, 2:00

Use the information on Lani's Initial Management page and the above information on nursing rounds to set up Lani's Daily Care page. Your facilitator will prompt you to include the necessary information.

When the group has completed this exercise,
your facilitator will give you an answer sheet.

Name: LANI Sex: M (F) Age: 18mths Date of admission: 14 Feb 2011 Time: 7:30 Hospital ID number: 324 Page 1 of 6

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given:

SIGNS OF SAM Severe wasting? (Yes) No
Bilateral Pitting Oedema? 0 (+) ++ +++
Dermatosis? 0 + ++ (+++) (raw skin, fissures)
Weight (kg): 7.0 Height / length (cm): 76
WFH z-score: <-3 MUAC (mm): 109

TEMPERATURE: 38 °C (axillary) / rectal
If axillary < 35° C or rectal < 35.5° C, actively warm child. Check temperature every 30 minutes.

BLOOD GLUCOSE (mmol/L): 4 ***If no test available, treat for hypoglycaemia.***
If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NG): Yes No
If < 3 mmol/L and lethargic, unconscious or convulsing, give sterile 10% glucose IV:
5 ml x ___ kg (child's weight) = ___ ml. *Then give 50 ml bolus NG.*
Time glucose given: Oral NG IV

HAEMOGLOBIN (Hb) (g/dl): 9 or Packed Cell Vol (PCV): Blood type:

If Hb < 4 g/dl (or Hb 4–6 g/dl **AND** respiratory distress), transfuse 10 ml/kg whole fresh blood (or 5–7 ml/kg packed cells) slowly over 3 hours. Amount:
Time started: Ended:

EYE SIGNS None (Left) Right
Bitot's spots Pus or inflammation (Corneal clouding) Corneal ulceration

If ulceration, give vitamin A and atropine immediately. Record on Daily Care page.
If no ulceration, give vitamin A preventive dose on week 4 or upon discharge.

ORAL DOSES VITAMIN A		
*Treatment dose on days 1, 2, 15	< 6 months*	50,000 IU
	6–12 months* **	100,000 IU
**Preventive dose on week 4 or upon discharge	> 12 months* **	200,000 IU

MEASLES Yes No **Vaccination upon admission:** Yes No (Record on Outcome page)

FEEDING
Begin feeding with F-75 as soon as possible.
If child is rehydrated, reweigh before determining amount to feed. New weight: _____ kg.
Amount for 2-hourly feedings: 75 **ml F-75*** **Time first fed:** 8:00
* *If hypoglycaemic, feed ¼ of this amount every half hour for first 2 hours; continue until blood glucose reaches 3 mmol/L.*
Record all feeds on 24-Hour Food Intake Chart page.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hands Slow capillary refill (> 3 seconds) Weak or fast pulse
If lethargic or unconscious*, plus cold hands, plus either slow capillary refill or weak or fast pulse, *give oxygen.*
Give IV glucose as described under Blood Glucose (left).
Then give IV fluids: Amount IV fluids per hour: 15 ml x ____ kg (child's wt) = _____ ml

	Start:	Monitor every 10 minutes					**2nd hr	Monitor every 10 minutes				
Time							**					
Resp. rate							**					
Pulse rate							**					

** In case of suspected hypernatraemic dehydration, see Operational Guide or CMAM Manual Appendix, page 183.*
***If respiratory and pulse rates are slower after 1 hour, repeat same amount IV fluids for second hour; then alternate ReSoMal and F-75 for up to 10 hours as in right section of chart below. If no improvement on IV fluids, transfuse whole fresh blood. (See 'Haemoglobin' section at left.) Give maintenance IV fluids (4 ml/kg/hour) while waiting for blood.*

DIARRHOEA

Watery diarrhoea? Yes (No)
Blood in stool? Yes (No)
Vomiting? Yes (No)
Number of days with diarrhoea: _____

If diarrhoea, circle signs present:
Skin pinch goes back slowly Lethargic Thirsty
Restless/irritable Dry mouth/tongue No tears
Sunken eyes

If diarrhoea and/or vomiting, give ReSoMal orally*. Every 30 minutes for first 2 hours, monitor and give:*
5 ml x ____ kg (*child's* wt) = ____ ml ReSoMal

For up to 10 hours, give ReSoMal and F-75 orally* in alternate hours. Monitor every hour. Amount of ReSoMal to offer**:
5 to 10 ml x ____ kg (*child's* wt) = _____ to _____ ml ReSoMal

Time	Start															
Resp. rate																
Pulse rate																
Passed urine? Y N																
Number stools																
Number vomits																
Hydration signs																
Amount taken (ml)						F-75		F-75		F-75		F-75		F-75		

* Give ReSoMal orally (or, if child is unconscious or too ill to take the ReSoMal orally, give by NGT).
*** **Stop ReSoMal if signs of hydration:** Passing urine, moist tongue, making saliva, not thirsty.*
Stop ReSoMal if any sign of over-hydration: *Increasing pulse and resp. rates, engorging jugular veins, increasing oedema, puffing of eyelids.*

ANTIBIOTICS (Drug/Route)	Dose/Frequency/Duration	Time of 1st Dose
AMOXICILLIN - CLAVULANIC ACID ORAL	150 mg/DAY OR 50 mg dose THREE TIMES FOR FIVE DAYS	8:00

MALARIA TEST (Type/Date/Outcome):	Antimalarial: Dose/Frequency/Duration	Time of 1st Dose
HIV TEST (Type/Date/Outcome):	If + HIV test, give cotrimoxazole:	

5.0 Monitoring Pulse, Respirations and Temperature, and Watching for Danger Signs

Measure pulse, count respirations and measure 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 over-hydration due to feeding or rehydrating too fast. An increase or decrease in temperature to above or below normal can also indicate infection.

It is critical to monitor the child closely (every 4 hours) during initial treatment and during transition to free feeding on RUTF and/or F-100. After the child is stable and feeding freely on RUTF and/or F-100, you may decrease monitoring of pulse, respirations 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 Inpatient Management Record. There is space on the Monitoring Record to record six readings per day on pulse, respirations and temperature for a number of days. It is convenient to keep the pages of a Inpatient Management Record in order on a clipboard. When the first Monitoring Record is full, simply add another one to the stack.

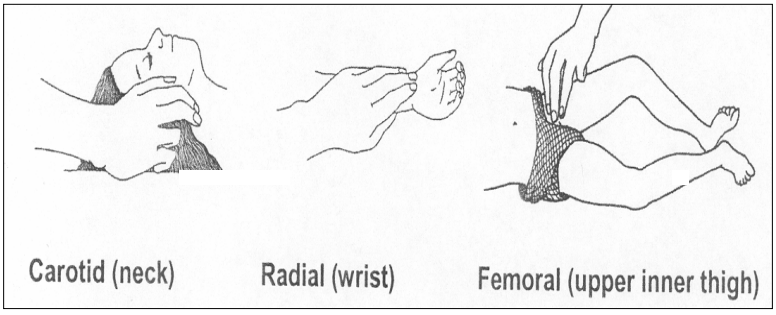
Example of Monitoring Record of the Inpatient Management Record

Page 22 shows an example of a completed Monitoring Record of the Inpatient Management Record.

Tell a facilitator when you have reached this point in the module. When everyone is ready, your facilitator will present a brief demonstration of how to use the Monitoring Record. In the meantime, you may continue reading.

5.1 Measuring Pulse Rate

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



Count pulses (beats) per minute, or count pulses per 30 seconds and multiply by 2. Record pulses (beats) per minute on the Monitoring Record section of the Inpatient Management Record or in the temperature charts currently used in the inpatient wards.

5.2 Measuring Respiratory Rate


Timing breaths

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 Inpatient Management Record.

5.3 Taking Temperature

As discussed in **Module 3, Initial Management**, rectal temperature is preferred. Steps for taking temperature are discussed in that module.

A graph is used for recording temperature on the Monitoring Record, so that increases and decreases can easily be seen. Along the bottom of the graph, enter the times at which monitoring will be done (at 4-hour intervals). 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 Recognising Danger Signs

Changes in Pulse, Respirations and Temperature

The following increases in pulse or respiratory rate should be confirmed 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 on IV fluids, confirm in 10 minutes and watch closely.

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 over-hydration due to feeding or rehydrating too fast. Call a physician for help. Stop feeds and ReSoMal, and slow fluids until a physician has checked the child.

If only the respiratory rate increases, determine if the child has fast breathing, which may indicate pneumonia. If the child is from 0 up to 2 months old, a rate of 60 breaths per minute or more is considered fast. If the child is from 2 up to 12 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 only the pulse rate increases, there is no cause for concern, as the increase may be the result of many reasons, such as fear or crying.

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 re-warming. Have the mother hold the child next to her skin or use a heater or lamp (with caution). Be sure the room is warm (25° C–30° C if

possible) and the child is covered. Hypothermia may be a sign of infection. If the temperature drops suddenly, call a physician.

Increases in temperature can also indicate infection.

Call a physician for help if there is a sudden increase or decrease in temperature. Changes in temperature can easily be seen on the temperature graph on the Monitoring Record of the Inpatient Management Record. Notice the changes in temperature on the example of the Monitoring Record on page 22.

Summary of Danger Signs Related to Pulse, Respirations and Temperature

	Danger sign:	Suggests:
Pulse and respirations	Confirmed increase in pulse rate of 25 or more beats per minute, along with confirmed increase in respiratory rate of 5 or more breaths per minute	Infection *or* Heart failure (possibly from over-hydration due to feeding or rehydrating too fast)
Respirations only	Fast breathing: • ≥ 60 breaths/minute in infant up to 2 months • ≥ 50 breaths/minute in infant 2 months up to 12 months old • ≥ 40 breaths/minute in child 12 months up to 5 years	Pneumonia
Temperature	Any sudden increase or decrease Axillary temperature < 35° C or rectal temperature < 35.5° C	Infection Hypothermia (possibly due to infection, a missed feed or child being uncovered)

Other Danger Signs

Carefully watch 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 keep him or her in a separate area. Take special care with hand-washing after handling these children.

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

- anorexia (loss of appetite)
- change in mental state (e.g., becoming lethargic)
- jaundice (yellowish skin or eyes)
- cyanosis (tongue/lips turning blue from lack of oxygen)
- difficult breathing
- difficulty feeding or waking (drowsy)
- abdominal distension
- appearance or re-appearance of oedema
- large weight changes (> 5 mg/kg/day)
- increased vomiting
- petechiae (bruising)

Alert a physician if any of these danger signs appear. See Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid for a summary.

6.0 Continuing Care at Night

Many deaths in children with SAM 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.
- 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, respirations and temperature.
- Watch carefully for danger signs and call a physician if necessary.

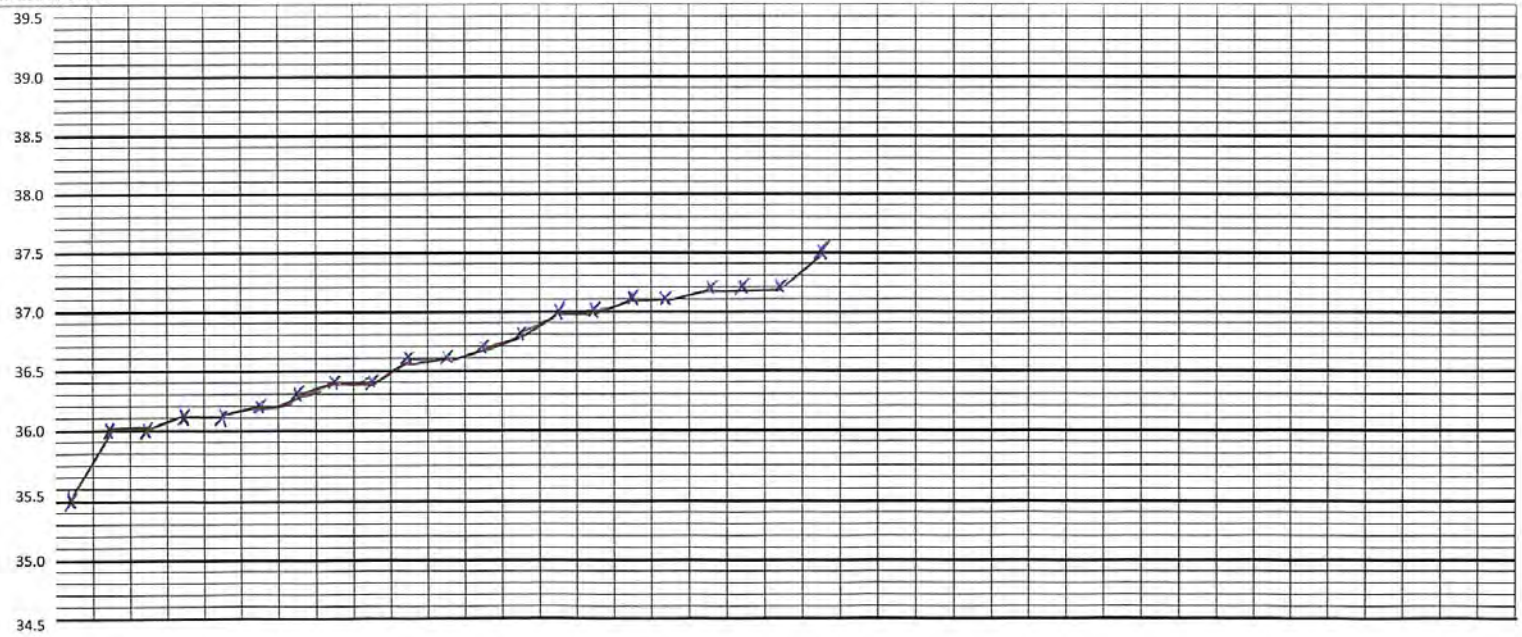
Name: BIANCA Sex: M (F) Age: _____ Date of admission: _____ Time: _____ Hospital ID number: _____ Page 3 of 6

MONITORING RECORD

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

DATE																							
Time	10:00	14:00	18:00	22:00	2:00	6:00	10:00	14:00	18:00	22:00	2:00	6:00	10:00	14:00	18:00	22:00	2:00	6:00	10:00	14:00	18:00	22:00	
RESPIRATORY RATE																							
Breaths/ minute	35	30	32	35	35	32	35	30	32	35	32	35	35	35	35	35	37	35	35	40	40		
PULSE RATE																							
Beats/ minute	90	86	90	90	92	90	86	92	86	90	90	90	90	90	92	92	90	90	92	95	95		

TEMPERATURE



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 Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid).

SHORT ANSWER EXERCISE

The following questions relate to the example of the Monitoring Record on the previous page. The child monitored is 2 years old.

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

   _____° C _____ breaths/minute _____ beats/minute

2. What is the trend for the child's temperature over days 1 through 3? (Check 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 the Monitoring Record.

6. Are there any danger signs? If so, what are they? Should the nurse call a physician?

Compare your answers to this exercise to the answers given beginning on page 39.

Exercise C

In this exercise, you will make entries on a Daily Care page and Monitoring Record of a Inpatient Management Record. You will use the Daily Care page that you set up for Lani in Exercise B. Obtain a blank Monitoring Record from the supply in your classroom.

Pretend that you are the nurse who cares for Lani on her first day in the ward. At the times shown below, you give Lani her medications and/or monitor her progress. Make appropriate entries on the Daily Care page and Monitoring Record. For example, enter your signature or record results of monitoring. *Additional information about feeding is provided in italics. You do not need to record this information.*

Day 1

8:00 Lani is given her first feed of F-75. It is recorded on the 24-Hour Food Intake Chart.
- You give Lani amoxicillin-clavulanic acid oral 50 mg orally.
- You give her 5 mg folic acid and 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 ill, you do not bathe her, but you dab potassium permanganate solution on the worst patches of dermatosis, and you cover the raw areas with ointment and gauze.

9:00 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 *The shift changes. Now pretend that you are the nurse on the next shift.*
Lani is given her fourth feed of F-75. It is recorded on the 24-Hour Food Intake Chart.

16:00 You give Lani amoxicillin-clavulanic acid oral 50 mg orally. You put one drop of tetracycline and one drop of atropine in her left eye.

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 and at 22:00, Lani will be fed again. At that time what else should be given to Lani?

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

3. In addition to feeding, what should be done for Lani at 24:00?

When you have finished this exercise, please discuss your answers with a facilitator.

Exercise D

In this exercise, you will review several Monitoring Records and identify any danger signs.

Case 1 – Lani

You will remember that Lani was admitted to Inpatient Care with an ear infection and fever. You began Lani's Monitoring Record in the last exercise. Lani's continuing Monitoring Record for the first 2 days is on the next page. Review her Monitoring Record; then answer the questions below.

1. What happens to Lani's temperature at 5:00 on day 2?

2. Is this temperature change a danger sign? Why or why not?

3. What might be a cause of the temperature change?

4. Do Lani's pulse and respiratory rates indicate any danger signs?

5. What should be done for Lani at 5:00?

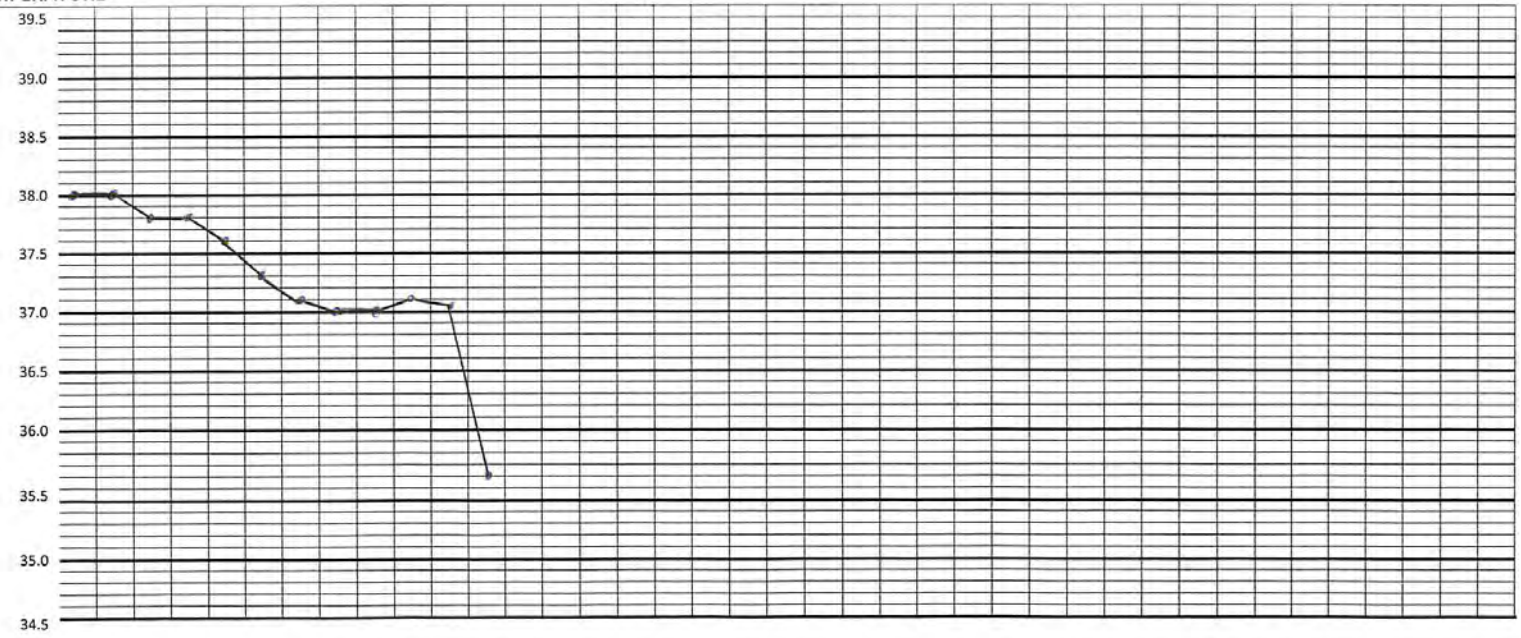
Name: LANI Sex: M (F) Age: 18 mths Date of admission: 4/2/01 Time: 7:30 Hospital ID number: 324 Page 3 of 6

MONITORING RECORD

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

DATE													
Time	9:00	13:00	17:00	21:00	1:00	5:00	9:00	13:00	17:00	21:00	1:00	5:00	
RESPIRATORY RATE													
Breaths/ minute	35	35	35	35	30	35	35	32	35	32	35	35	
PULSE RATE													
Beats/ minute	100	100	105	110	100	105	102	105	105	100	105	105	

TEMPERATURE



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 Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid).

Case 2 – Carla

Carla is 2 years old and was admitted to Inpatient Care with severe wasting and diarrhoea. She took ReSoMal orally for 2 hours. Then she began taking ReSoMal and F-75 in alternate hours. She did not take enough F-75 by mouth, so now she is being fed by nasogastric tube (NGT). She still has some diarrhoea and is given ReSoMal after each loose stool.

Review Carla's Monitoring Record on the next page and answer the questions below.

1. Does Carla's temperature graph indicate any danger sign? If yes, what is the danger sign?

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

3. What should be done in 30 minutes?

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

5. What is a possible reason for the increase in Carla's pulse and respiratory rates?

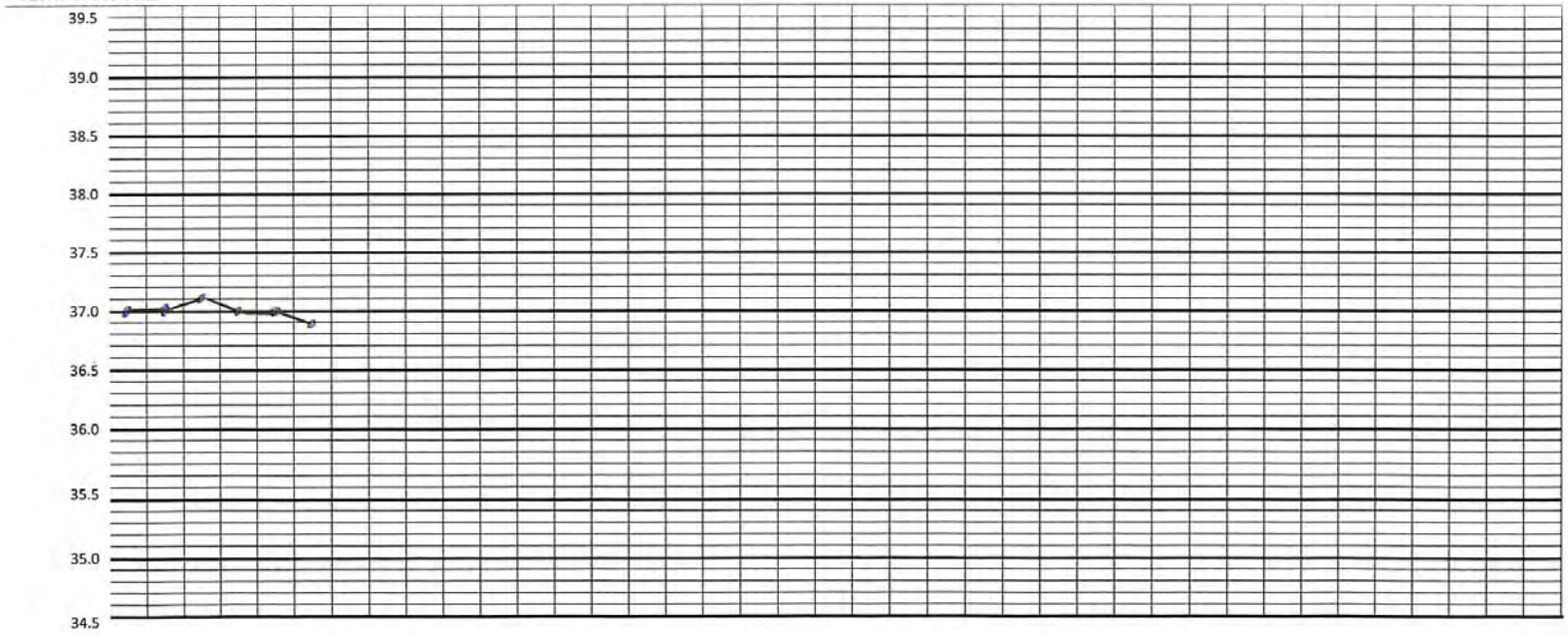
Name: CARLA Sex: M (F) Age: _____ Date of admission: _____ Time: _____ Hospital ID number: _____ Page 3 of 6

MONITORING RECORD

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

DATE							
Time	10:00	14:00	18:00	22:00	2:00	6:00	
RESPIRATORY RATE							
Breaths/ minute	30	30	32	35	35	40	
PULSE RATE							
Beats/ minute	90	90	95	100	100	125	

TEMPERATURE



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 Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid).

Case 3 – Bijouli

Bijouli is 2 years old. He has severe wasting with moderate oedema (++), but has no obvious complications or infections on admission to Inpatient Care. 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:

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

2. Does the record of Bijouli's pulse rates suggest any danger sign? Why or why not?

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

4. Should the physician be alerted?

5. The nurse notes that Bijouli has chest in-drawing. What could be the problem? What treatment should be given to Bijouli?
   (Hint: Refer to Annexes 6–8 of the CMAM Manual.)

When you have finished this exercise, please discuss your answers with a facilitator.

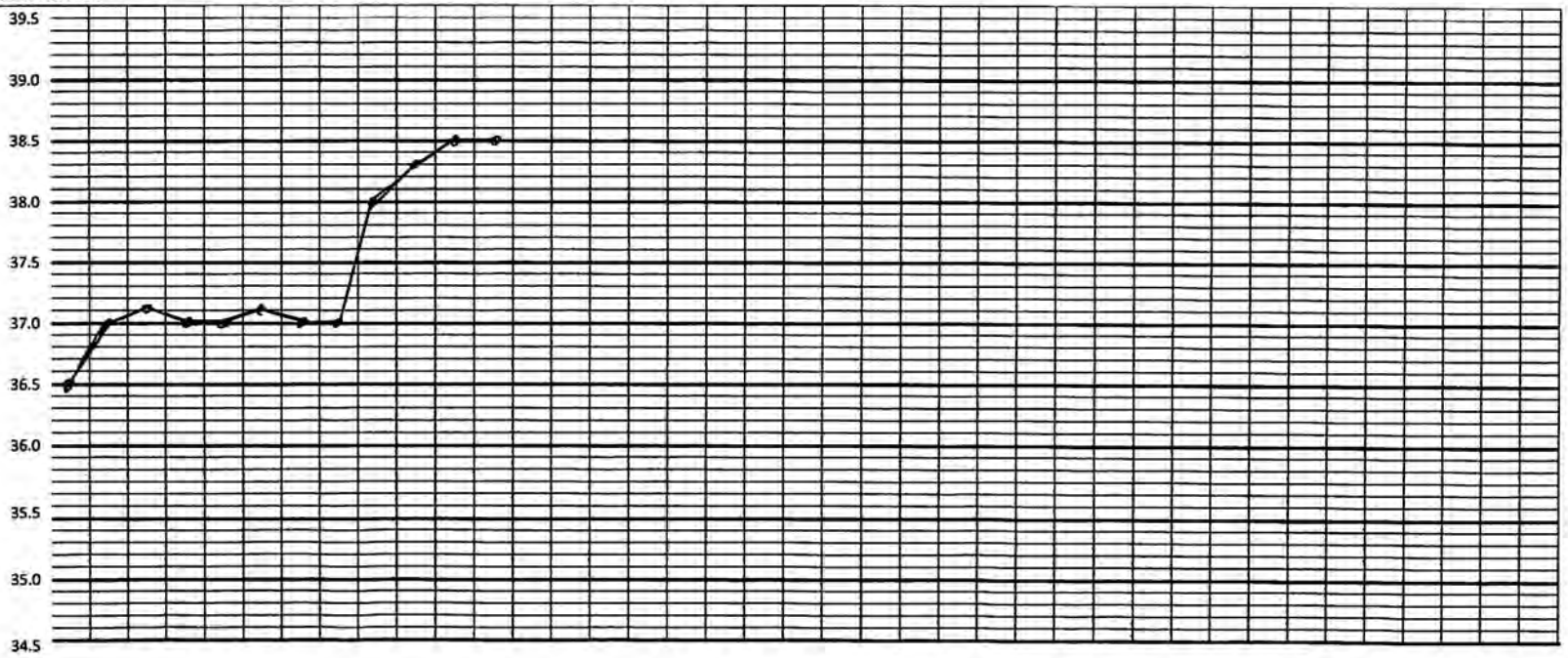
Name: BIJOULI Sex: (M) F Age: _____ Date of admission: _____ Time: _____ Hospital ID number: _____ Page 3 of 6

MONITORING RECORD

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

DATE	DAY 1					DAY 2						DAY 3	
Time	10:00	14:00	18:00	22:00	2:00	6:00	10:00	14:00	18:00	22:00	2:00	6:00	10:00
RESPIRATORY RATE													
Breaths/ minute	35	30	32	35	35	35	35	38	35	40	40	45	50
PULSE RATE													
Beats/ minute	90	86	90	92	90	90	90	92	90	90	96	100	110

TEMPERATURE



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 Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid).

7.0 Testing the Appetite with RUTF

When any medical complication is resolving, the child is alert and his/her appetite has returned, the child is ready for transition, and it is time to conduct the appetite test with RUTF (see **Module 4, Feeding**, for information on conducting and interpreting the results of the appetite test).

In the transition phase, RUTF is offered at every feed and complemented by F-100 if needed until the child eats RUTF at every meal.

8.0 Preparing and Maintaining a Weight Chart

How to weigh a child was explained in **Module 2, Principles of Care**. Remember to weigh the child at about the same time each day, about 1 hour before or after a feed.

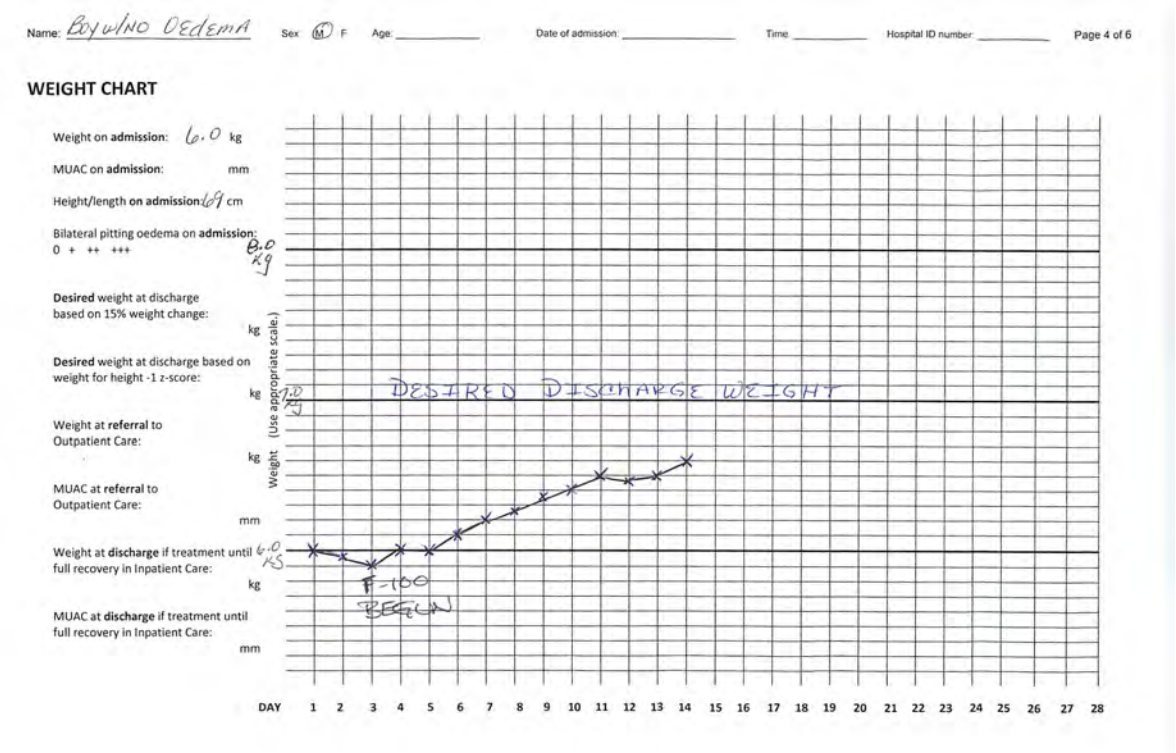
After weighing the child each day, record the child's weight on the Daily Care page of the Inpatient Management Record. Then plot the child's weight on the weight chart included in the Inpatient Management Record. The weight chart shows the child's progress toward discharge weight, any loss of weight due to oedema and/or failure to improve.

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 desired discharge 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 Guidance Table to Determine Target Weight for Discharge from Management of Severe Acute Malnutrition for Children 6–59 Months Job Aid, or see page 101 of the CMAM Manual (Annex 5), to determine the child's desired discharge weight. Mark the desired discharge weight with a horizontal line across the chart.
- 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 and/or F-100 is begun (the first day of transition), draw and label an arrow pointing to the weight for that day.

Example of Weight Chart for a Boy with No Oedema

Starting weight: 6.0 kg Length: 69 cm
Desired discharge weight (15% weight gain from admission weight, oedema free): 7.0 kg



The chart above 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 F-100.

Note: If possible, the child is referred to Outpatient Care after stabilisation, and does not require attaining the target weight while in Inpatient Care; he or she will do so while in Outpatient Care.

SHORT ANSWER EXERCISE

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. Look up the desired discharge weight for the child. Enter the desired discharge weight on the blank line above the chart, and mark it with a bold horizontal 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?

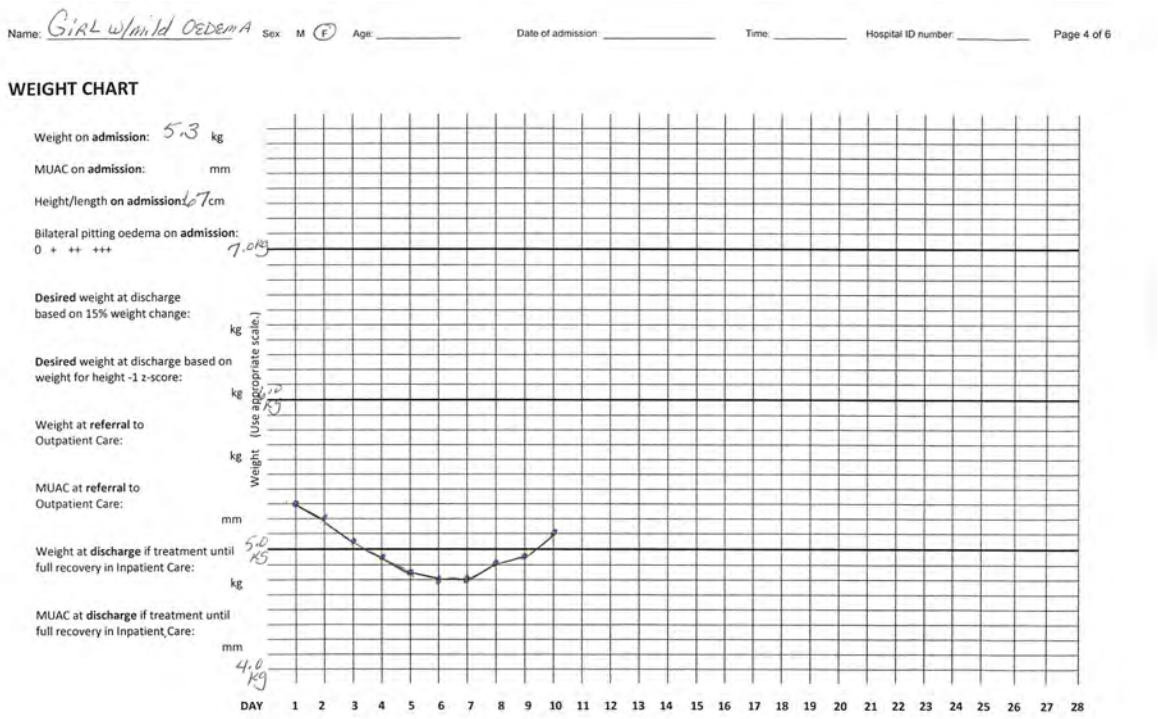
5. Has the child made progress?

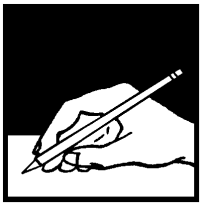
Note: The child probably could have been referred to Outpatient Care after stabilisation, by days 11, 12 and 13, and does not require attaining the target weight while in Inpatient Care; she will do so while in Outpatient Care.

Compare your answers to those given on page 45 at the end of the module.

Example of Weight Chart for a Girl with Mild Oedema (+)

Starting weight: 5.3 kg Length: 67 cm
Desired discharge weight (15% weight gain of admission weight, oedema free): _____ kg





Exercise E

In this exercise, you will prepare a weight chart for Daniel, a boy admitted with oedema of both feet (+) and severe wasting. Daniel's weight on admission is 10.1 kg. His height is 91 cm and MUAC is 112 mm. Enter this information in the blanks beside the weight chart on the next page.

1. What is Daniel's desired discharge weight? Enter this weight in the appropriate blank beside the weight chart.

2. When labelling the vertical axis of Daniel's weight chart, how much weight loss should one 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. Mark Daniel's desired discharge weight with a bold line across the chart.

5. 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 – 10.05 kg	Day 6, transition to RUTF/F-100 – 9.2 kg	Day 10 – 9.6 kg	Day 14 – 9.9 kg
Day 3 – 9.8 kg	Day 7, transition – 9.2 kg	Day 11 – 9.7 kg	
Day 4 – 9.6 kg	Day 8, transition – 9.3 kg	Day 12 – 9.65 kg	
Day 5 – 9.4 kg	Day 9, free feeding on F-100 – 9.4 kg	Day 13 – 9.8 kg	

6. Summarise Daniel's weight changes briefly in words:

7. 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?

WEIGHT CHART

Weight on **admission**: kg

MUAC on **admission**: mm

Height/length **on admission**: cm

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

Desired weight at discharge based on 15% weight change:
kg

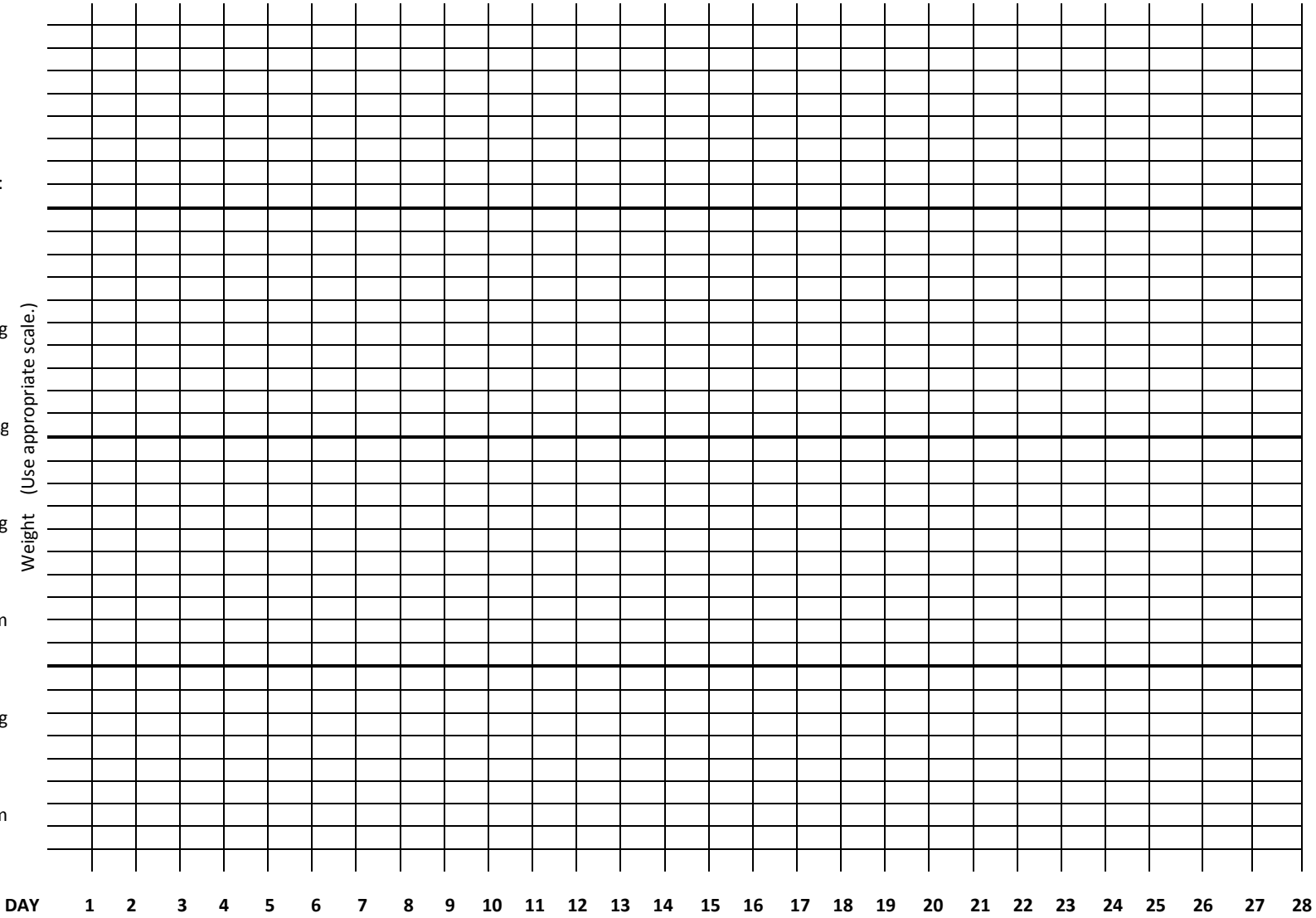
Desired weight at discharge based on weight for height -1 z-score:
kg

Weight at **referral** to Outpatient Care:
kg

MUAC at **referral** to Outpatient Care:
mm

Weight at **discharge** if treatment until full recovery in Inpatient Care:
kg

MUAC at **discharge** if treatment until full recovery in Inpatient Care:
mm



Answers to Exercises

Answers to short answer exercise, page 3

1. Answers b, c and d should be checked.

2. Answers a, b, c and e should be checked.

3. Answer b should be checked. 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 to short answer exercise, page 10

1. Yes, the child should be given a dose of 200,000 IU on day 15.

2. After 4 weeks in treatment or upon discharge, 100,000 IU oral.

3. Give Georgio's first dose 200,000 IU orally/100,000 IU by IM injection.

   Give the second dose orally on day 2. Give 200,000 IU.
   (Note: Give the third dose orally on day 15. Give 200,000 IU.)

4. Yes, Dalia should be given a dose on day 1 at the hospital since she has corneal clouding.

   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.

   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 to Exercise A, page 14

1. Photo 8:

   Vitamin A – Days 1, 2 and 15
   Chloramphenicol or tetracycline eye drops only
   (Pus may hide signs of vitamin A deficiency, so additional doses of vitamin A are given on days 2 and 15 to be on the safe side.)

2. Photo 9:

   Vitamin A – Days 1, 2 and 15
   Chloramphenicol or tetracycline eye drops/ointment and atropine eye drops

3. Photo 10:

   Vitamin A – Days 1, 2 and 15
   Chloramphenicol or tetracycline eye drops/ointment only.

   Note: Although Bitot's spots alone do not require eye drops, inflammation suggests infection and requires chloramphenicol or tetracycline eye drops/ointment.

4. Vitamin A – Days 1 and 14 *(Do not give on day 2 since the child had a dose yesterday.)*

   Chloramphenicol or tetracycline eye drops only

5. Vitamin A – Days 1, 2 and 15 *(because the child had measles within the past 3 months)*
   No eye drops

6. Vitamin A – After week 4 or upon discharge
   No eye drops

7. Photo 12:

   Vitamin A – Days 1, 2 and 15
   Chloramphenicol or tetracycline eye drops and atropine eye drops

Answers to Exercise B, page 16

Name: LANI Sex: M (F) Age: 18 mths Date of admission: 14 Feb 2011 Time: 7:30 Hospital ID number: 324 Page 2 of 6

DAILY CARE

	Week 1							Week 2							Week 3						
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date	14/2																				
Daily weight (kg)	7.0																				
Weight gain (g/kg)	*Calculate when on RUTF or F-100*																				
Bilateral pitting oedema 0 + ++ +++	+																				
Diarrhoea (D) or Vomit (V)	0																				
FEED PLAN: Type of feed	F75																				
# daily feeds	12																				
Volume to give per feed	75																				
Total volume taken (ml)	910																				
NGT Y N	N																				
Breastfeeding Y N	Y																				
Appetite test with RUTF *F failed P passed*	—																				
ANTIBIOTICS	*List prescribed antibiotics in left column. Allow one row for each daily dose. Draw a box around days/times that each drug should be given. Sign when given.*																				
AMOXICILLIN 8:00	HD																				
CLAVULANIC 16:00	HD																				
ACID ORAL 24:00																					
50 mg/dose X3/day																					
ANTIMALARIAL (Note type of drug)																					
FOLIC ACID (Single dose)	5 mg																				
VITAMIN A (Treatment dose on days 1, 2, 15; shade days 3–14. Preventive dose after week 4 + oedema free)	HD															*Preventive vitamin A dose is given after 4 weeks and when oedema free.*					
ANTIHELMINTHIC (Give on week 2 presumptive dose, unless severe infestation)								*If severe infestation: give immediately. If presumptive treatment: give after 1 week. See dosage on Job Aid Routine Medicine Protocols.*													
IRON Give 3mg/kg/day, 2x daily, after 2 days on F-100. Do not give when on RUTF. Give after malaria treatment.																					
EYE INFECTIONS 8:00 16:00 Tetracycline ointment 2x daily or Chloramphenicol 1 drop 4x daily											*After 7–10 days, eye drops are no longer needed.*										
Corneal clouding and corneal ulceration: 8:00 16:00 24:00 As above, plus atropine 1 drop 3x daily																					
Dermatosis 0 + ++ +++	+++																				
Ear, mouth or throat problems																					
Bathing, 1% permanganate 16:00	HD																				

Answers to short answer exercise, page 23

1. 36.4°C 30 breaths/minute 92 beats/minute

2. Answer b should be checked.

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, a pulse rate of 100 beats/minute and a 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.

Answers to Exercise C, <u>page 24</u>

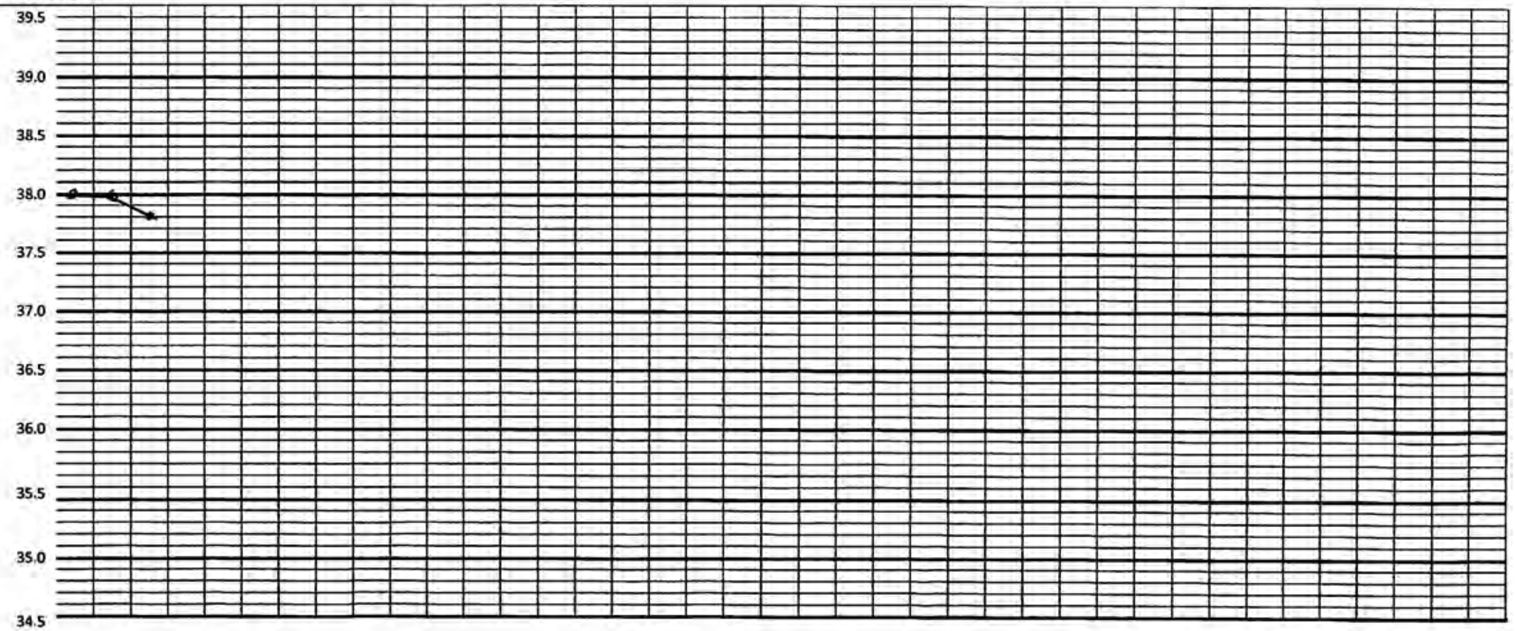
Name: LANI Sex: M (F) Age: 18 mths Date of admission: 14 Feb 2011 Time: 7:30 Hospital ID number: 324 Page 3 of 6

MONITORING RECORD

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

DATE			
Time	9:00	13:00	17:00
RESPIRATORY RATE			
Breaths/ minute	35	35	35
PULSE RATE			
Beats/ minute	100	105	110

TEMPERATURE



***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 Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care Job Aid).*

1. Nothing other than the feed

2. 21:00

3. Amoxicillin-clavulanic acid 50 mg orally, atropine drop

Answers to Exercise D, page 26

Case 1 – Lani

1. Her temperature drops suddenly to 35.7° C.

2. Yes, a sudden drop in temperature is a danger sign. Lani is approaching hypothermia.

3. It is possible that Lani became uncovered during the night or missed a feed, either of which can lead to hypothermia.

   Lani is already being treated with antibiotics for infection, so it is less likely that infection is a cause of the decrease in temperature. However, there may be a hidden infection that is not responding to the antibiotics that she has been given.

4. No, Lani's pulse and respirations remain fairly steady.

5. Cover Lani to keep her warm. Check to see if she took her last feeding. Check whether antibiotics have been given on schedule. Alert the physician.

Case 2 – Carla

1. No, Carla's temperature remains steady and normal.

2. Yes, Carla's respiratory rate increased by 5 and pulse rate increased by 25 beats per minute between 2:00 and 6:00 on day 2.

3. Re-check both respiratory and pulse rates.

4. Alert the physician immediately. Do not give any more food or fluids until the physician has examined the child.

5. Carla shows signs of possible heart failure. She may have taken too much ReSoMal along with the F-75 being given by NGT. Or there may be a hidden, non-responding infection (with suppressed fever).

Case 3 – Bijouli

1. His temperature increases from 37.1° C to 38.5° C . Yes, this is a danger sign.

2. No, there is no increase of 25 beats/minute or more.

3. Yes, 40 beats per minute is considered fast breathing in a 2-year-old. Bijouli has had fast breathing since 22:00 on day 2.

4. Yes, the physician should be alerted.

5. Fast breathing and chest in-drawing are signs of pneumonia (severe pneumonia). This was not apparent on admission and is not responding to amoxicillin. Bijouli should be given benzylpenicillin, 50,000 IU/kg IM 4 times per day for at least 5 days.

Answers to short answer exercise, page 35

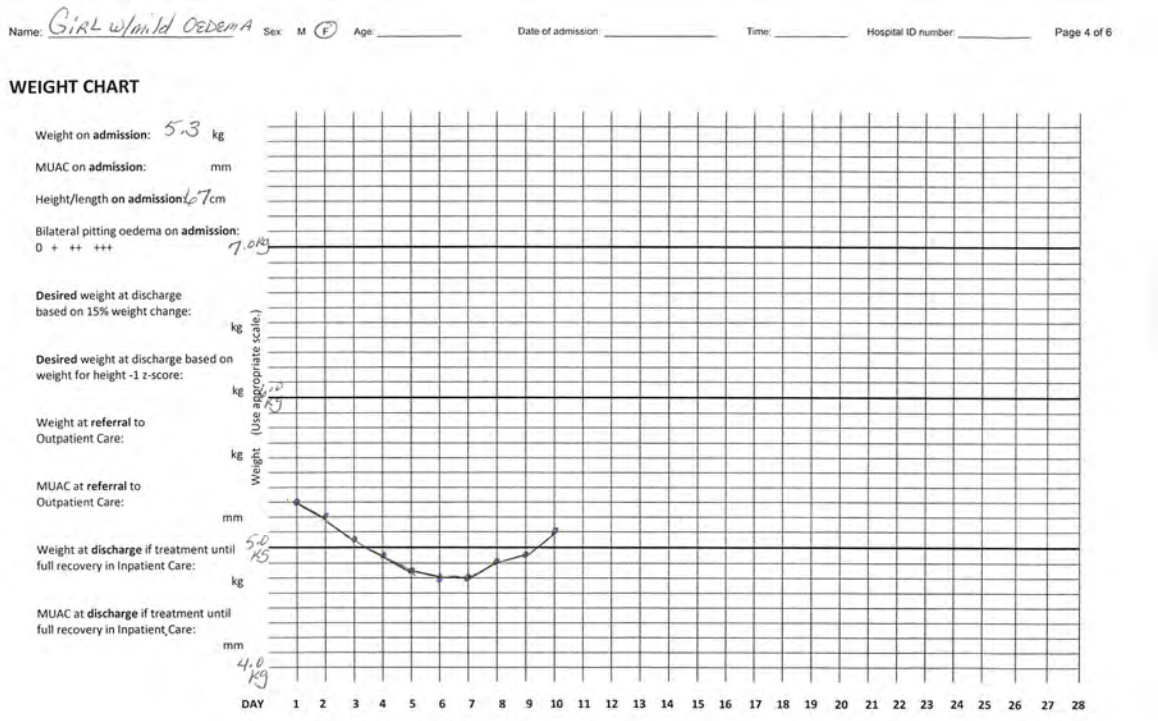
1. The girl was admitted with mild oedema and a weight of 5.3 kg. Her oedema-free weight is 4.8 kg. The desired target weight on discharge from treatment for the girl is 5.6 kg (15% weight gain of admission weight oedema free). This weight should be marked with a bold line on the weight chart. See below.

2. See below.

3. 4.8 kg on days 6 and 7.

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 4.8 kg. Then she put on new tissue and her weight increased to 5.3 kg.



Answers to Exercise E, page 37

1. Daniel's desired discharge weight is 11.6 kg. It is entered on the weight chart on the next page.

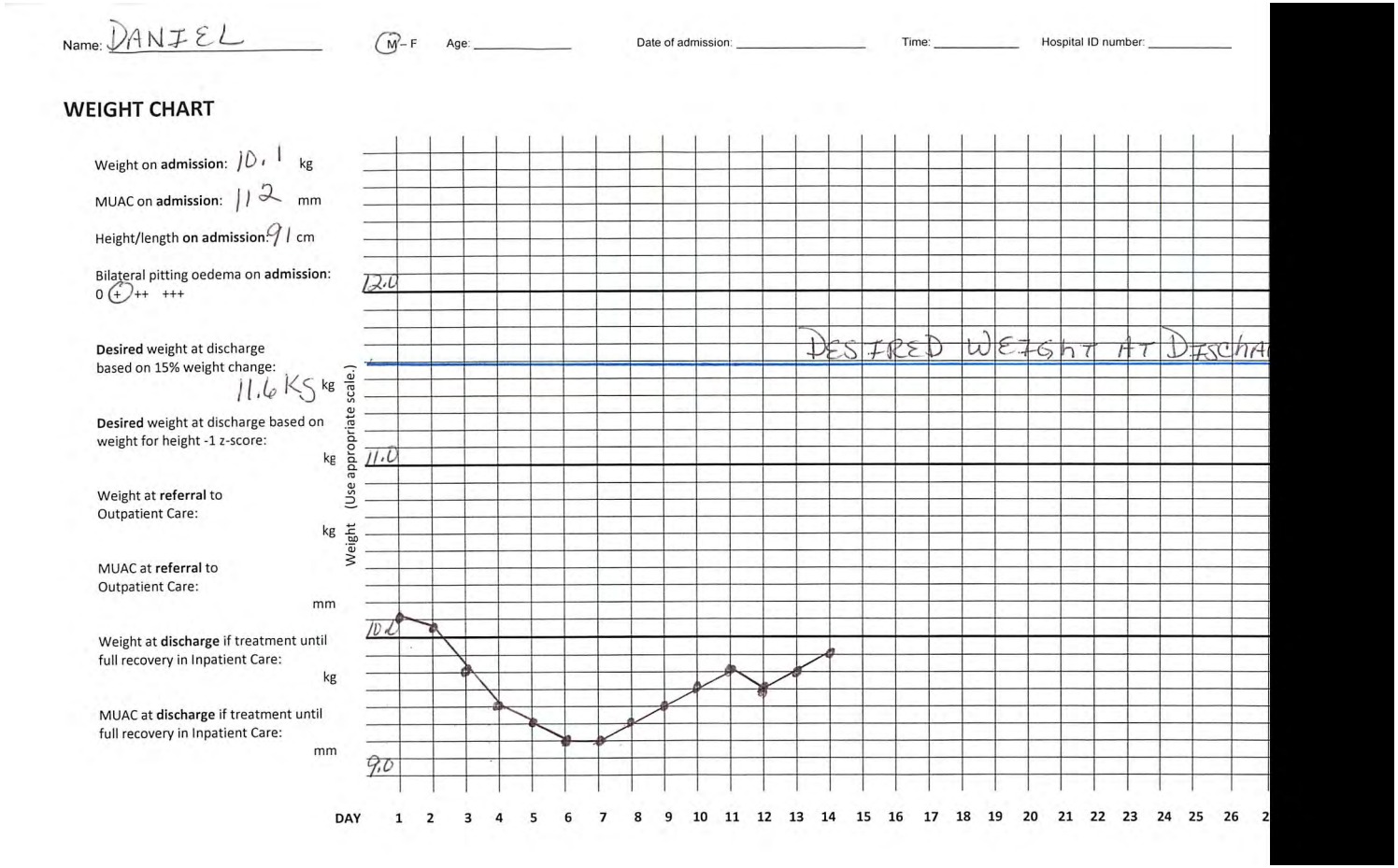
2. Allow for a 1 kg weight loss. (So 9.0 kg should be the bottom weight on the vertical axis.)

3–5. Answers to 3–5 are entered on the following weight chart.

6. For the first 6 days, Daniel lost oedema fluid. Then, starting on day 8, after 2 days of transition to F-100, he gained weight steadily on F-100.

7. No, it is only a small loss, and he gains on the next day. There could be many possible causes, e.g., less intake or just stable intake, or a mistake in weighing or recording the weight.

[Correct on chart on following page: desired discharge weight is 11.6 kg]



Name: DANIEL (M) – F Age: _____ Date of admission: _____ Time: _____ Hospital ID number: _____

WEIGHT CHART

Weight on **admission**: 10.1 kg

MUAC on **admission**: 112 mm

Height/length **on admission**: 91 cm

Bilateral pitting oedema on **admission**:
0 (+) ++ +++

Desired weight at discharge based on 15% weight change: 11.6 KG kg

Desired weight at discharge based on weight for height -1 z-score: kg

Weight at **referral** to Outpatient Care: kg

MUAC at **referral** to Outpatient Care: mm

Weight at **discharge** if treatment until full recovery in Inpatient Care: kg

MUAC at **discharge** if treatment until full recovery in Inpatient Care: mm

Weight (Use appropriate scale.)

12.0
11.0
10.0
9.0

DESIRED WEIGHT AT DISCHA

DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 2