MODULE 6
MONITORING, PROBLEM SOLVING, AND REPORTING

REPUBLIC OF GHANA
MINISTRY OF HEALTH

GHANA HEALTH SERVICE
Your Health • Our Concern

Training Course on Inpatient Management of Severe Acute Malnutrition

(Adapted from the 2002 WHO *Training course on the inpatient management of severe acute malnutrition*)

Children 6–59 Months with SAM and Medical Complications

March 2012

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 2010 MOH/GHS *Interim National Guidelines for Community-Based Management of Severe Acute Malnutrition in Ghana.* The training course was modified by the MOH/GHS SAM Support Unit in collaboration with the MOH/GHS Regional SAM Support Teams. USAID/Ghana, FANTA-2 Bridge project, UNICEF/Ghana and WHO/Ghana provided technical and financial support to review and modify the training course. This revised training course is made possible by the generous support of the American people through the support of USAID/Ghana 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.

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Contents

Acronyms and Abbreviations

AWG	Average Daily Weight Gain
CCP	Critical Care Pathway
CMAM	Community-Based Management of Acute Malnutrition
CMV	Combined Mineral and Vitamin Mix
ER	Emergency Room
g	Gram(s)
HIV	Human Immunodeficiency Virus
IMNCI	Integrated Management of Neonatal and Childhood Illness
IU	International Unit(s)
IV	Intravenous
IYCF	Infant and Young Child Feeding
kg	Kilogram(s)
L	Litre(s)
LOS	Length of Stay
M&R	Monitoring and Reporting
ml	Millilitre(s)
MUAC	Mid-Upper Arm Circumference
NGT	Nasogastric Tube
OPD	Outpatient Department
ORS	Oral Rehydration Solution
QI	Quality Improvement
ReSoMal	Rehydration Solution for Malnutrition
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
TB	Tuberculosis
WFH	Weight-for-Height
WHO	World Health Organisation
°C	Degrees Celsius
>	Greater Than
≥	Greater Than or Equal To
<	Less Than
%	Percent

Introduction

Monitoring and reporting (M&R) and problem solving focus on inpatient management of severe acute malnutrition (SAM) in children under 5, as they are the primary target group of Community-Based Management of Acute Malnutrition (CMAM). Well-informed monitoring data identify in a timely manner aspects of the management of SAM that need improvement. Appropriate action can then be taken to improve individual care, organisation of care, and overall quality of care.

Many types of problems may occur in Inpatient Care for the management of SAM with poor appetite and/or medical complications. There may be problems with an individual patient's progress or care, such as failure to gain weight or to respond to treatment for an infection. There may also be problems that affect the entire Inpatient Care ward, such as problems with staff performance, food preparation, or Inpatient Care procedures or equipment. All of these problems require attention to prevent patient deaths.

This module teaches a process for monitoring, identifying, and solving problems that may occur in Inpatient Care and reporting—all to support quality improvement (QI).

This process can be used in solving problems with case management of individual patients or problems that may affect the entire performance of Inpatient Care.

Learning Objectives

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

- Using a process to identify and solve problems on case management
- Monitoring and solving problems with an individual patient
- Monitoring overall weight gain in Inpatient Care
- Monitoring patient outcomes (such as recovery, death, defaulting, non-recovery, referral)
- Monitoring case management practices and procedures
- Solving problems
- M&R of performance in Inpatient Care and overall for CMAM

1. Use a Process to Identify and Solve Problems on Case Management

1.1. Identify Problems

Identify problems by monitoring.

By monitoring individual patient progress, weight gain, and care, you may identify specific problems such as the following.

- A patient's appetite has not returned.
- A patient has failed to gain weight for several days while taking ready-to-use therapeutic food (RUTF) or F-100.
- A mother[1] wants to take her child home before the child has reached the discharge weight.
- A child seems to have an unrecognised infection.

By monitoring overall patient outcomes, case-fatality rates, and performance indicators, you may identify such problems as the following.

- The case-fatality rate in Inpatient Care was 15% during the months of June through August.
- Mothers leave with their children before they are discharged.
- Children that stay in Inpatient Care until full recovery have poor weight gain.

By monitoring case management practices, food preparation, Inpatient Care procedures, hygiene, and performance of Inpatient Care services, you may identify additional problems, which may in fact be causes of poor weight gain or adverse outcomes. For example, you may identify such problems as the following.

- Intravenous (IV) fluids are given routinely by certain physicians.
- Children are not fed every 2 hours through the night.

[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, throughout this module 'mother' means 'mother/caregiver', 'she' means 'he or she', and 'her' means 'his or her'.

- Staff do not consistently wash their hands with soap.

- Combined mineral and vitamin mix (CMV) is not added to therapeutic milks prepared at the hospital.

When a problem is identified, describe it in as much detail as possible.

To describe the problem, state when, where, and with whom the problem is occurring. Also try to determine when the problem began. Knowing the details will help you find the cause or causes of the problem.

SHORT ANSWER EXERCISE

Read each pair of problem descriptions below. Tick the problem description that is more detailed and therefore more useful.

1. ____ a. There has been an increase in the number of deaths on Inpatient Care.
   ____ b. Four deaths have occurred at night in the past month.

2. ____ a. Tran is not gaining weight.
   ____ b. After gaining 10 g/kg/day for 4 days, Tran has stayed the same weight for the last 3 days.

3. ____ a. Dr Perez prescribes a diuretic for severe oedema, but no other physicians do this.
   ____ b. Diuretics are sometimes prescribed for oedema.

4. ____ a. Weight gain of some children in Inpatient Care is poor.
   ____ b. Weight gain is poor for most children that are taking adapted home foods instead of F-100 or RUTF.

5. ____ a. For the last 3 days, Carla has been eating well in transition, but is not eating RUTF.
   ____ b. Carla's appetite has returned, she is in transition, but she has not passed the RUTF appetite test.

Compare your answers to this exercise to answers given on page 96 at the end of the module.

1.2. Investigate Causes of Problems

It is critical to find the cause(s) of a problem before trying to solve it. Different causes require different solutions.

Investigation of causes may involve doing laboratory tests for a patient, observing and asking questions of staff, reviewing patient records, and/or monitoring food preparation and Inpatient Care procedures.

1.3. Determine Solutions

Solutions will depend on the causes of the problems. For example, if staff do not know how to do a new procedure, a solution may be training. On the other hand, if the cause is a lack of equipment or supplies, a different solution is needed. Solutions should:

- Remove the cause of the problem (or reduce its effects)
- Be feasible (affordable, practical, realistic)
- Not create another problem

Example of Problem-Solving Process

Weight gain in Inpatient Care is not as good as it was several months ago. Instead of good weight gain for most children on RUTF or F-100 during rehabilitation phase (that is, 10 g/kg/day or more), the typical weight gain is now less than 10 g/kg/day.

The senior nurse decides to investigate by monitoring Inpatient Care procedures and food preparation. Below are some possible causes that she might find, along with an appropriate solution for each.

Possible Causes	**Possible Solutions**
The type of milk available for making feeds has changed, and the recipes have not been adjusted appropriately.	Adjust the feed recipes appropriately to use the milk that is available. Post the new recipes and teach them to staff.
Staff add too much water when locally preparing the F-100 recipe. They add 1,000 ml instead of just enough water to make 1,000 ml of formula.	Explain the recipe to staff. Be sure that 1,000 ml is clearly marked on mixing containers. Demonstrate how to add water up to the mark.
Measuring scoops have been lost, and staff are estimating amounts of ingredients for feeds.	Obtain new scoops.
There are more children in Inpatient Care but staff numbers have not increased. Nurses cannot spend as much time feeding each child.	Invest time in teaching mothers to feed and care for the children.

It is clear that buying new scoops will not solve the problem if the cause is really lack of an appropriate recipe. By investigating the cause of a problem, one can avoid wasting money and time on the wrong solutions.

1.4. Implement Solutions

Implementing a solution may be relatively simple (such as speaking with an individual staff member or changing a child's feeding plan) or quite complex (such as changing staff assignments in Inpatient Care). Good communication with staff is important whenever any change is made.

Promote Good Communication when Solving Problems

- Hold regular staff meetings, during which positive feedback is given and any problems, causes, and solutions are discussed.
- Provide staff with job descriptions that list their assigned tasks.
- Provide clear instructions whenever any change is made.
- Provide 'job aids', such as checklists or posted instructions, for any complex tasks.

Follow up to determine if a solution is implemented as intended. Then continue monitoring to determine whether the problem is solved. Give feedback to staff that includes praise for work done well, along with any instructions for improvement.

2. Monitor and Solve Problems with an Individual Patient

2.1. Monitor Individual Patient Progress and Care

Nursing staff should monitor certain signs (such as pulse rate, respiratory rate, and temperature) repeatedly during the day, especially during initial treatment. If there are danger signs (such as increasing pulse and respiratory rate or a sudden drop in temperature), staff should immediately respond as described in **Module 3, Initial Management** and **Module 5, Daily Care**. Otherwise, information is simply recorded on the Monitoring Record of the Critical Care Pathway (CCP), where it is reviewed by a clinician during rounds.

Clinicians should do a round of the Inpatient Care ward at least once every day. During rounds, a clinician should:

- Observe every child and question the mother and nurse
  - Is the child more alert? Smiling? Sitting up? Able to play?
  - Has the child lost oedema?
  - Is there less diarrhoea?
  - Has dermatosis improved?
  - How is the child's appetite?

- Review the child's weight chart
  - Is the child in transition (or rehabilitation) gaining weight according to the weight chart?
  - If there is a loss, is it due to decreasing oedema?

- Review the CCP and food intake chart
  - Is the child getting the recommended feeds?
  - Is prescribed care (such as antibiotics, folic acid, iron) being given?
  - Are there any danger signs recorded on the CCP: increased pulse rate, respiratory rate, temperature, or decrease in temperature?

During transition and rehabilitation phases (for those who remain in Inpatient Care until full recovery), the clinician should calculate the child's weight gain in g/kg/day, after the child has taken RUTF or F-100 and judge whether weight gain is sufficient.

TRANSITION:
Good weight gain: 5 g/kg/day
Excess weight gain is not a good sign.

REHABILITATION:
Good weight gain: 10 g/kg/day or more
Moderate weight gain: 5 up to10 g/kg/day
Poor weight gain: Less than 5 g/kg/day

Note: *Daily weight gain is not calculated for children in the stabilisation phase and who are on the F-75 diet because weight gain is not indicated during this phase. Their condition is stabilising.*

Note: *Avoid the use of 'discharge from Inpatient Care' for children with SAM who after stabilisation leave the hospital and are referred to Outpatient Care and continue their treatment at home. When leaving Inpatient Care, they have not yet ended the treatment.*

To Calculate Daily Weight Gain

1. Subtract the child's weight yesterday (W1) from the child's weight today (W2).

   Note: *Do this even if the child has lost weight. If the child has lost weight, the result will be negative. Express the difference as grams (kg × 1,000). This is the total amount of weight gained during the day.*

   W2 − W1 = ____ kg ____ kg × 1,000 = ____ grams gained

2. Divide the grams gained (from step 1) by the child's weight yesterday. The result is the weight gain in g/kg/day.

   Weight gain in grams ÷ W1 = ____ g/kg/day

   Remember that if the child has lost weight during the past day, the 'weight gain' for that day will be negative.

Note: *This calculation is not useful until the child is on F-100 or RUTF, as the child is not expected to gain weight on F-75. In fact, weight may be lost on F-75 due to decreasing oedema.*

Remember that this calculation will be most useful if the child is weighed at about the same time each day.

Example

Kofi began taking F-100 on Day 4 in Inpatient Care. By Day 6 he began to gain weight. On Day 6 Kofi weighed 7.32 kg. On Day 7 he weighed 7.4 kg. His weight gain in g/kg/day can be calculated as follows:

1. 7.4 kg – 7.32 kg = 0.08 kg 0.08 kg × 1,000 = 80 grams gained

2. 80 grams ÷ 7.32 = 10.9 g/kg/day

A gain of 10.9 g/kg/day is considered a good weight gain.

SHORT ANSWER EXERCISE

Calculate the daily weight gain for the children described below. Assume that the weights were taken at about the same time each day.

1. Mustapha weighed 7.25 kg on Day 10. He weighed 7.30 kg on Day 11. What was his weight gain in g/kg/day?

2. Kebba weighed 6.22 kg on Day 8. She weighed 6.25 kg on Day 9. What was her weight gain in g/kg/day?

3. Galo weighed 7.6 kg on Day 9. He weighed 7.5 kg on Day 10. What was his weight gain in g/kg/day? (***Note:*** *Since Galo lost weight, the answer will be negative.*)

Compare your answers to this exercise to answers given on page 96 at the end of the module.

2.2. Identify the Child Who is Failing to Respond

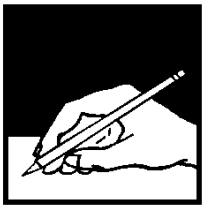
A child is failing to respond if he or she either:

- Does not improve initially
- Gains weight but then levels off or deteriorates

Some criteria for failure to respond are listed below as a guide.

Criteria	Approximate time after admission
Primary failure* to respond to treatment	
Failure to regain appetite	4–7 days
Failure to start to lose oedema	4–7 days
Oedema still present	10 days
Failure to enter rehabilitation phase or referral to Outpatient Care	10 days
Secondary failure to respond to treatment**	
Failure to gain at least 5 g/kg/day after feeding on RUTF/F-100	During Inpatient Care rehabilitation phase: - For 2 successive days
Static weight after feeding on RUTF/F-100	- For 3 successive days

* Primary failure to respond means when the criterion has been observed since admission.
** Secondary failure to respond means when the child has shown improvement and then later deteriorates as described by the criterion.



Exercise A

In this exercise, you will review information about two cases to determine if they are making progress or if they are failing to respond.

Case 1 – Ceri

Ceri was admitted to Inpatient Care 5 days ago with moderate oedema, and a mid-upper arm circumference (MUAC) of 11.4 cm. Parts of her CCP and her 24-Hour Food Intake Chart for Day 5 are provided on the next three pages. Ceri's pulse rate has remained at about 90 beats per minute over the 5 days, and her breathing rate has remained at about 35 breaths per minute.

Study the information about Ceri and answer the questions below.

1a. Is Ceri making progress? If so, describe her progress.

1b. Are there problems? If so, describe the problems.

Name: Ceri Sex: M (F) Age (months): 16 months Date of Admission: 1/2/01 Time: 8:30 AM Hospital ID Number: 302

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (from Outpatient, Inpatient Care or other), New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 + (++) +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 6.5kg MUAC (cm): 11.4 cm

TEMPERATURE: 36.5 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4mmol/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).

If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 9 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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 (Inflammation) (Corneal clouding) Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.

**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page

***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	(200,000 IU)

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 75 **ml F-75* Time first fed:** 20:00

If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.

**If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

***If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. Every 30 minutes for first 2 hours, monitor and give:**5 ml x 6.5 kg (child's wt) = 33 ml ReSoMal*

For up to 10 hours, give ReSoMal and F-75 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*

5 to 10 ml x 6.5 kg (child's wt) = 33 to 66 ml ReSoMal

Time	9:00	9:30	10:00	10:30	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Resp. rate	38	36	36	35	35	35	35	35	35	35	35	35	35	35
Pulse rate	110	100	100	90	90	90	90	90	90	90	90	90	90	90
Passed urine? Y N		N	N	N	N	N	N	N	N	N	N	Y	N	N
Number stools		1	1	0	0	1	0	0	1	0	0	0	0	0
Number vomits		0	0	0	0	0	0	0	0	0	0	0	0	0
Hydration signs			moist mouth				moist eyes							
Amount taken (ml)	33	33	33	33	45	F-75	45	F-75	40	F-75	35	F-75	35	F-75

*Give ReSoMal orally or in special cases by NGT

*** Stop ReSoMal if signs of rehydration appear:** Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration

****Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids

Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: 6.8 **kg** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin (oral) (125 mg / 5ml)	5mL syrup every 8 hours for 5 days	9:00
MALARIA TEST Type/Date/Outcome	**Antimalarial:** **Dose/Frequency/Duration**	**Time of 1st Dose**
HIV TEST Type/Date/Outcome	**If HIV+, give Cotrimoxazole**	

Name: Ceri Sex: M (F) Age (months): 16 months Date of Admission: 1/2/01 Time: 8:30 am Hospital ID Number: 302

DAILY CARE

DAYS IN HOSPITAL	Week 1							Week 2							Week 3						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date	1/2	2/2	3/2	4/2	5/2																
Daily weight (kg)	6.8	6.8	6.8	6.8	6.8																
Weight gain (g/kg)	*Calculate daily when on RUTF or F-100*				—																
Bilateral pitting oedema 0 + ++ +++	++	++	++	++	++																
Diarrhoea (D) or Vomit (V): O D V	D	D	O	O	O																
FEED PLAN: Type feed	F-75	F-75	F-75	F-75	F-75																
# daily feeds	12	12	12	8	8																
Volume to give per feed																					
Total volume taken (ml)	700	780	800	700	610																
NG Tube Y N	N	N	N	N	N																
Breastfeeding Y N	N	N	N	N	N																
Appetite test with RUTF ***F failed P passed***	-	-	-	F	F																
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. Initial when given.*																				
Amoxicillin 9:00	PS	PS	PS	PS	PS																
5 ml 17:00	MC	MC	MC	MC	MC																
1:00	PS	PS	PS	PS	PS																
ANTIMALARIAL (note type of drug)																					
FOLIC ACID (5 mg single dose upon admission) 9:00	PS	*Give a single dose upon admission*																			
VITAMIN A 200,000 IU	PS	PS	*Give day 1, 2, and 15 if child admitted with eye sign or recent measles. Else, give routinely for prevention, single dose on week 4 or upon discharge unless evidence of dose in past one month*																		
ANTIHELMINTHIC *Drug for worms* only give to children > 24 months unless the younger child has worm infestation																					
IRON (if not on RUTF) Give 3mg/kg/day, 2 x daily Give Iron after Malaria treatment	*Begin iron after 2 days on F-100. Do not give when on RUTF.*																				
FOR EYE PROBLEMS											*After 7–10 days, when eye drops are no longer needed, shade boxes for eye drops.*										
Tetracycline eye ointment: 2x daily or 9:00	PS	PS	PS	PS	PS																
Chloramphenicol eye drops: 1 drop 4 x daily 15:00	PS	PS	PS	PS	PS																
20:00	MC	MC	MC	MC	MC																
3:00	MC	MC	MC	MC	MC																
Corneal Ulceration, As above, plus 1% atropine eye drops: 1 drop 3 x daily																					
Dermatosis 0 + ++ +++	+	+	+	+	+																
Bloody Stool (Yes or No)																					
Ear problems																					
Mouth or Throat problems																					
Bathing, 1% permanganate	JP	JP	RY	RY	RY																
OTHER																					

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Ceri Hospital No: 302 Admission weight (kg): 6.5 kg Today's weight (kg): 6.8 kg Oedema: 0 + ++ +++

DATE: 6/12/01		**TYPE OF FEED** *(indicate if F-75, RUTF, F-100, or F-100-D)* **:** F-75	GIVE: 8 feeds of 110 ml/packets			
Time	**a.** Amount offered (ml)	**b.** Amount left in cup (ml)	**c.** Amount taken orally (a – b)	**d.** Amount taken by NGT, if needed (ml)	**e.** Estimated amount vomited (ml)	**f.** Watery diarrhoea (if present, yes)
08:00	110	20	90			
11:00	110	25	85			
14:00	110	20	90			
17:00	110	30	80			
20:00	110	25	85			
23:00	110	20	90			
05:00	110	20	90			
		Column totals	**c.** 610	**d.** 0	**e.** 0	**Total yes:**
If child is ready for transition, conduct RUTF appetite test.				**Appetite test:** Failed Passed		
Total volume taken over 24 hours = amount taken orally **(c)** **+** amount taken by NGT **(d)** **–** total amount vomited **(e)** **=** 610 ml						

Case 2 – Lennox

A boy, Lennox, was admitted to Inpatient Care 10 days ago with mild oedema (both feet), dysentery, a fever, a MUAC of 11.2 cm. Lennox was given amoxicillin acid for 5 days. After 5 days, his dysentery was gone, but he was still sickly and had fever. He also had a deep, persistent cough, and some difficulty breathing. The physician suspected possible pneumonia and decided to add gentamicin, which has been given in addition for the next 5 days.

Study parts of Lennox's CCP and his most recent 24-Hour Food Intake Chart, which are given on the next five pages. Then answer the questions below.

2a. What is Lennox's weight gain in g/kg/day from Day 10 to Day 11? (Enter this on his CCP.)

2b. Is Lennox making progress? If so, describe his progress.

2c. Are there problems? If so, describe the problems.

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

Name: Lennox Sex: (M) F Age (months): about 2yrs Date of Admission: 2/11/01 Time: 8:30am Hospital ID Number: 561

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (*from Outpatient, Inpatient Care or other*) New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 (+) ++ +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 7.9 kg MUAC (cm): 11.2 cm

TEMPERATURE: 39 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 5mmoL/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).

If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 9.5 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.

**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page

***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 90 **ml F-75* Time first fed:** 20:00

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*						

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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

If diarrhoea, circle signs present:

Lethargic (Skin pinch goes back slowly)

(Dry mouth/tongue) Thirsty (Restless/irritable)

(No tears) (Sunken eyes)

If diarrhoea and/or vomiting, give ReSoMal. Every 30 minutes for first 2 hours, monitor and give:*5 ml x 7.9 kg (child's wt) = 39.5 ml ReSoMal

For up to 10 hours, give ReSoMal and F-75 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*

5 to 10 ml x 7.9 kg (child's wt) = 39.5 to 79 ml ReSoMal

Time	9:00	9:30	10:00	10:30	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Resp. rate	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Pulse rate	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Passed urine? Y N		N	N	N	N	N	N	N	Y	N	N	N	Y	N
Number stools		2	1	0	1	1	0	1	1	0	0	0	1	0
Number vomits		0	0	0	0	0	0	0	0	0	0	0	0	0
Hydration signs					moist mouth		Tears						OK→	
Amount taken (ml)	39	39	39	39	76	F-75	79	F-75	79	F-75	79	F-75	79	F-75

*Give ReSoMal orally or in special cases by NGT

*** **Stop ReSoMal if signs of rehydration appear:** Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*

**** **Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids*

Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: 8.0 *kg (record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin - Oral (125 mg/5 ml)	5ml Syrup every 8 hours for 5 days	9:00
MALARIA TEST Type/Date/Outcome	**Antimalarial:** Dose/Frequency/Duration	**Time of 1st Dose**
HIV TEST Type/Date/Outcome	**If HIV+, give Cotrimoxazole**	

Name: Lennox Sex: (M) F Age (months): about 2yrs Date of Admission: 2/11/01 Time: 8:30AM Hospital ID Number: 561

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	2/11	3/11	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11											
Daily weight (kg)	8.0	8.1	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0											
Weight gain (g/kg)	*Calculate daily when on RUTF or F-100*				–	0	12.6	0	0	0											
Bilateral pitting oedema 0 + ++ +++	+	+	+	+	0	0	0	0	0	0											
Diarrhoea (D) or Vomit (V): O D V	D	D	0	0	0	0	0	0	0	0											
FEED PLAN: Type feed	F-75	F-75	F-75	F-75	F-100	F-100	F-100	F-100	F-100	F-100											
# daily feeds																					
Volume to give per feed																					
Total volume taken (ml)	870	1040	1040	1050	1040	1200	1100	1000	1400	1400											
NG Tube Y N																					
Breastfeeding Y N																					
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. Initial when given.*																				
9:00	VS	VS	VS	VS	VS																
17:00	MP	MP	MP	MP	MP																
1:00	VS	VS	VS	VS	VS																
ANTIMALARIAL (note type of drug)																					
FOLIC ACID (5 mg single dose upon admission) 9:00	VS	*Give a single dose upon admission*																			
VITAMIN A			*Give day 1, 2, and 15 if child admitted with eye sign or recent measles. Else, give routinely for prevention, single dose on week 4 or upon discharge unless evidence of dose in past one month*																		
ANTIHELMINTHIC *Drug for worms* only give to children > 24 months unless the younger child has worm infestation																					
IRON (if not on RUTF) Give 3mg/kg/day, 2 x daily 11:00	*Begin iron after 2 days on F-100. Do not give when on RUTF.*						RG	VS	VS	VS											
Give Iron after Malaria treatment 17:00							EZ	LN	LN	LN											
FOR EYE PROBLEMS											*After 7–10 days, when eye drops are no longer needed, shade boxes for eye drops.*										
Tetracycline eye ointment: 2x daily or **Chloramphenicol eye drops:** 1 drop 4 x daily NONE																					
Corneal Ulceration, As above, plus 1% atropine eye drops: 1 drop 3 x daily																					
Dermatosis 0 + ++ +++	+	+	+	+	+	+	+	+	+	0											
Bloody Stool (Yes or No)																					
Ear problems																					
Mouth or Throat problems																					
Bathing, 1% permanganate	LT	LT	LT	MR	ON	ON	ON	LT	LT	LT											
OTHER																					

Name: Lennox Sex: (M) F Age (months): about 2yrs Date of Admission: 2/11/01 Time: 8:30 AM Hospital ID Number: 561

MONITORING RECORD

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

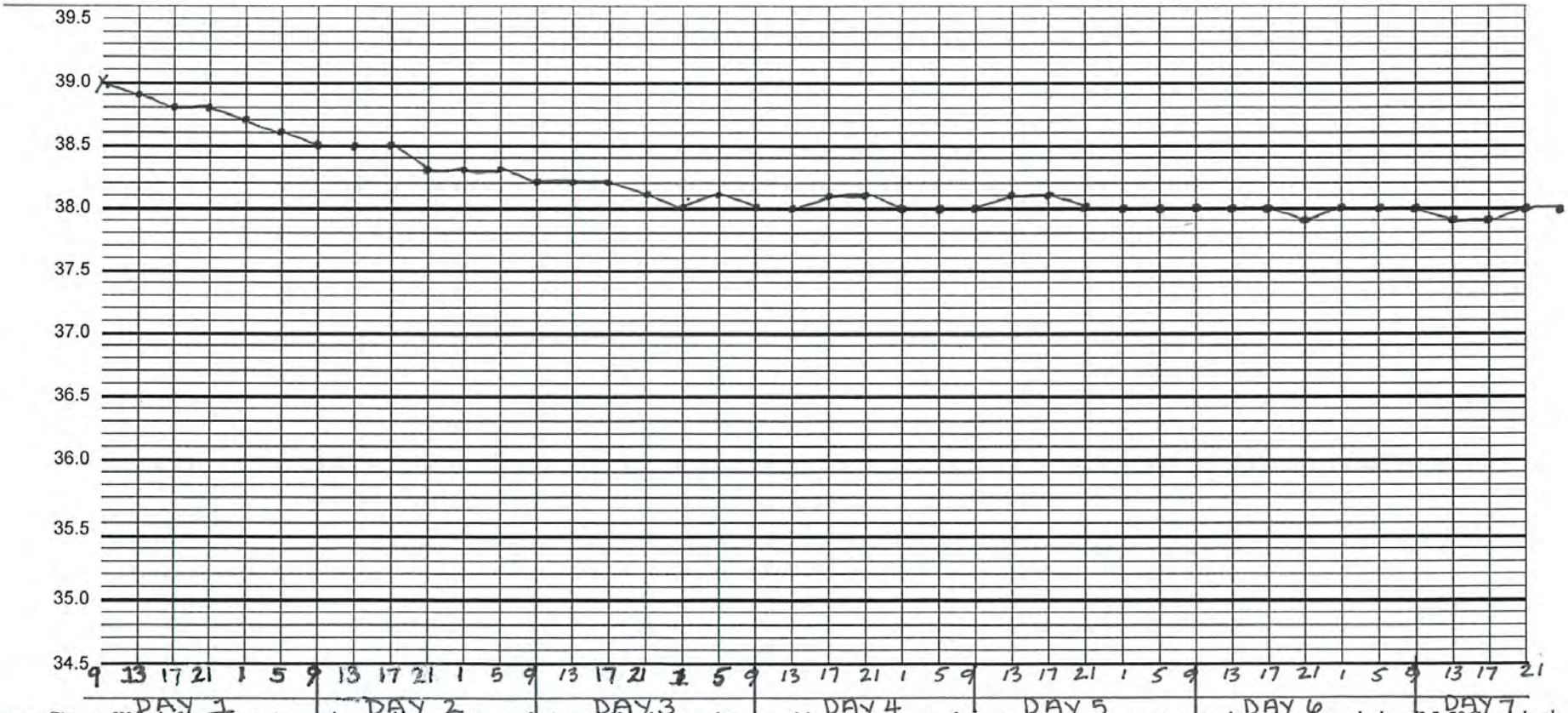
RESPIRATORY RATE

Breaths/ minute	30	30	30	30	30	30	30	32	32	30	30	32	32	30	35	35	30	30	30	30	30	30	30	30	30	35	35	38	38	38	40	40	35	35	35	35	40	38	35

PULSE RATE

Beats/ minute	95	95	95	95	95	95	95	95	95	95	95	97	95	95	95	95	95	95	95	95	95	95	95	95	95	100	100	100	105	100	100	100	100	100	100	100	100	100	100	100

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 and normal ranges of pulse and respiration rates listed in the Inpatient Care Job Aids.

Name: Lennox Sex: (M) F Age (months): about 2yrs Date of Admission: 2/11/01 Time: 8:30 Hospital ID Number: 561

WEIGHT CHART

Weight on admission: 8.0 kg (after rehydration)

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

Desired weight if full recovery in inpatient care (Target weight), 15% weight gain of admission weight or weight free of oedema:

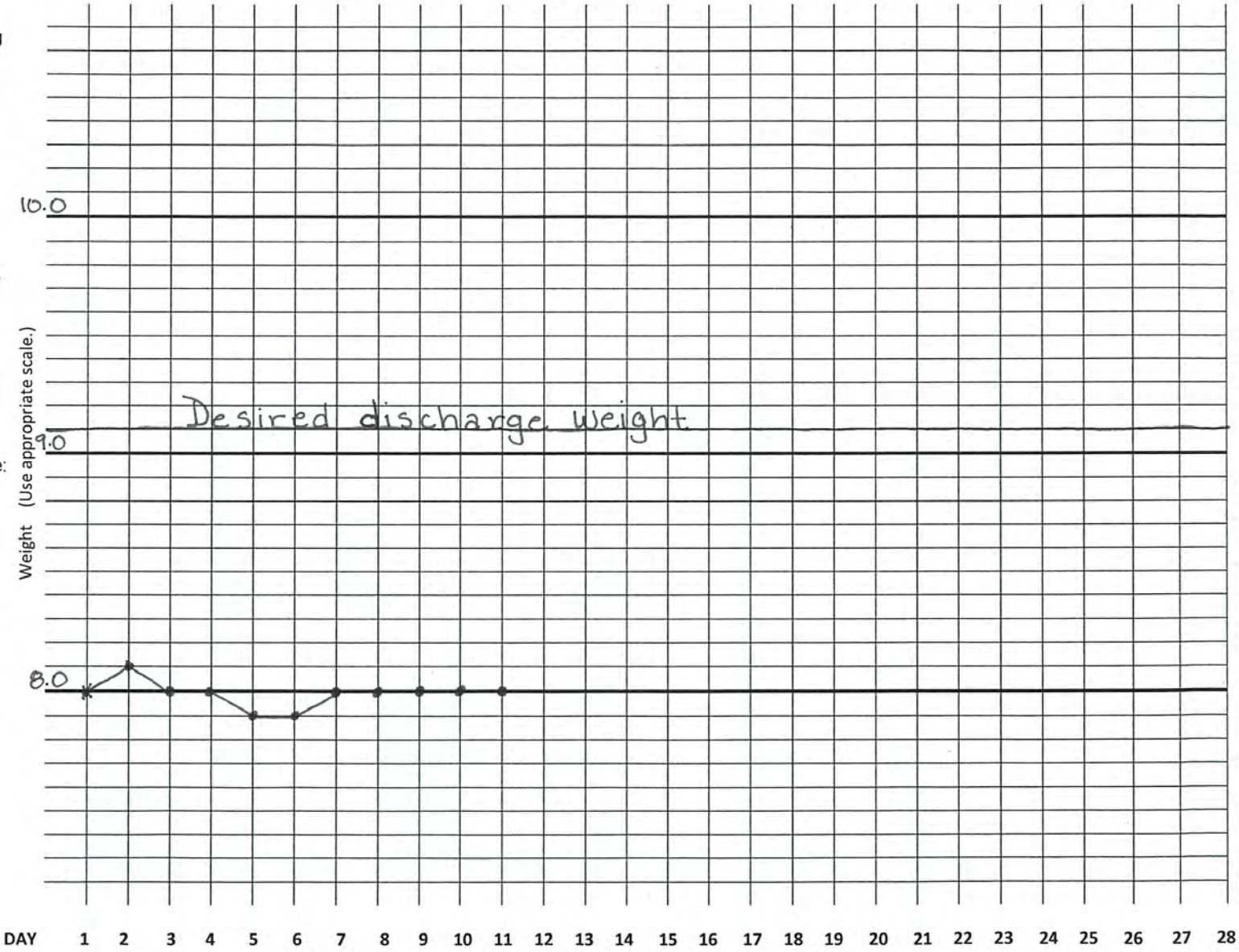
9.1 kg (weight free of oedema)

Weight at referral to outpatient care:

_____ kg

Weight at discharge if treatment until full recovery in inpatient care:

_____ kg



24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Lennox Hospital No: 561 Admission weight (kg): 8.0 kg Today's weight (kg): 8.0 kg Oedema: 0 (+) ++ +++

DATE: 11/11/01		**TYPE OF FEED** *(indicate if F-75, RUTF, F-100, or F-100-D)* **:** F-100		GIVE: 6 feeds of 210↑ ml/packets		
Time	**a.** Amount offered (ml)	**b.** Amount left in cup (ml)	**c.** Amount taken orally (a – b)	**d.** Amount taken by NGT, if needed (ml)	**e.** Estimated amount vomited (ml)	**f.** Watery diarrhoea (if present, yes)
08:00	210	0	210			
12:00	220	0	220			
16:00	230	0	230			
20:00	240	0	240			
24:00	250	0	250			
04:00	260	10	250			
	Column totals		**c.** 1400	**d.**	**e.**	**Total yes:**

If child is ready for transition, conduct RUTF appetite test. **Appetite test:** Failed Passed

Total volume taken over 24 hours = amount taken orally **(c)** **+** amount taken by NGT **(d)** **–** total amount vomited **(e)** **=** _____ml

2.3. Determine Causes of Failure to Respond

The causes of a child's failure to respond may be related to procedures, staff, equipment, or the environment throughout Inpatient Care, or they may be related only to the individual child. If many children are failing to respond, look for causes that affect the entire Inpatient Care ward, such as incorrect feeding practices or poor hygiene. These types of causes are discussed in **Section 5**. If your investigation is focused on one child, consider the following possible causes.

- The child is given insufficient food.
  - Has the feeding plan been adjusted as the child gains weight?
  - Is the correct food being given?
  - Is the correct amount offered at the required times?
  - Is the child being fed adequately at night?
  - Is the child being held and encouraged to eat?
  - Are leftovers recorded so the child's recorded intake is accurate?
  - Has the preparation and the quality of the therapeutic milk been checked?

- The child has a vitamin or mineral deficiency.
  - Is CMV added to the child's food each day?

- Insufficient attention is given to child.
  - Do staff pay less attention to this child for some reason (for example, because they believe he or she is 'beyond help')?
  - Is the mother present to assist in feeding and care of the child?

- The child suffers from **rumination**, where he or she regurgitates food from the stomach to the mouth, then vomits part of it and swallows the rest. This usually happens when the child is not observed.
  - Is the child eating well but failing to gain weight?
  - Does the child smell of vomit or have vomit-stained clothes or bedding?
  - Does the child seem unusually alert and suspicious?
  - Does the child make stereotyped chewing movements?

- The child has an **unrecognised infection**. Infections most commonly overlooked include pneumonia, urinary tract infection, ear infection, and tuberculosis (TB). Others include malaria, viral hepatitis B, and HIV infection.

- The child has a **serious underlying disease**, such as congenital abnormalities, cancer, or immunological diseases.

Remember that there may be multiple causes of failure to respond. For example, a child may have an infection plus a vitamin deficiency. Try to find all of the causes.

Frequent Causes of Failure to Respond

The most frequent causes of failure to respond to inpatient treatment are listed below.

Problems related to the health facility:

- Poor environment for malnourished children
- Lack of adherence to treatment protocols for SAM
- Failure to treat malnourished children in a separate area
- Failure to complete the individual treatment card (multi-chart) correctly, resulting in gaps in data for monitoring the child's progress
- Insufficient staff (particularly at night) or inadequately trained staff
- Inadequate supervision and constant rotation of staff in the treatment facility
- Inaccurate weighing machines
- Food prepared or given incorrectly

Problems related to the individual child:

- Insufficient feeds given
- Vitamin and mineral deficiencies
- Malabsorption
- Psychological trauma (particularly in refugee situations and families living with HIV)
- Rumination
- Infection, especially diarrhoea (amaebiasis, giardiasis, dysentery), pneumonia, TB, urinary infection/otitis media, malaria, HIV schistosomiasis, Kalazar/Leishmaniasis and/or hepatitis/cirrhosis
- Other serious underlying disease: congenital abnormalities (e.g., Down's syndrome), neurological damage (e.g., cerebral palsy), inborn errors of metabolism

2.4. Identify and Implement Solutions for the Individual Child

In some cases, the cause of a problem may require a specific medical solution. If the child has an infection, a clinician will need to prescribe appropriate treatment as described in **Module 3, Initial Management** or in the standard treatment guidelines for Ghana.

If a child is ruminating, it is best to have experienced staff members give him or her special attention. Staff need to show disapproval whenever the child begins to ruminate, without frightening the child, and encourage less harmful behaviours.

In many cases, the solution to a problem may seem apparent through 'common sense'. For example, if a child is not being fed according to schedule, he or she must be fed according to schedule. If the CMV has not been added to the child's food when locally preparing therapeutic milk recipes, it must be added. However, there may be underlying causes that are also important. Continue to ask 'Why?' until you reach the 'root causes' of problems. The solutions to problems must address the root causes.

Example of a Problem with Root Causes

Problem: A child becomes hypoglycaemic during her first night in Inpatient Care.

↑

One cause: She was not fed at 2:00 and 4:00.

↑

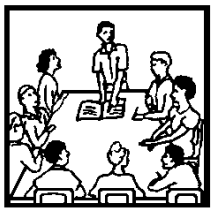
Root cause: The child's mother was too tired to wake up and feed her.

↑ ↑

Root cause: There are not enough night staff, so mothers are expected to feed the children at night.

Root cause: There is no quiet time or place for mothers to rest during the day.

Solutions: To solve this problem, it will be necessary to address all of the causes. Possible solutions include getting more night staff or finding a time and place for mothers to rest during the day. Night staff could also be asked to wake up the mothers and supervise night feeds, or help those mothers whose children require 2-hourly feeds.



Exercise B

In this exercise, you will discuss causes and solutions to problems affecting Ceri and Lennox, two cases presented previously in **Exercise A**.

Case 1 – Ceri

You remember that Ceri was failing to respond on Day 5. She had not lost her oedema and was not eating well. She had not progressed to RUTF or F-100. You may wish to review the information about Ceri on pages 13–15.

Write answers to the following questions as preparation for a group discussion:

1a. What are some possible causes of Ceri's failure to respond? (List at least three possible causes.)

1b. How could you find out the real cause(s)? List several possible ways to investigate.

1c. While observing feeding in Inpatient Care, the senior nurse found that the staff paid very close attention to the children with IV drips and nasogastric tubes (NGTs). They paid much less attention to the children feeding orally. Ceri did not appear as sick as many of the other children, and the nurses did not spend time with her encouraging her to eat.

Based on the senior nurse's observations, what is a possible cause of Ceri's failure to respond?

1d. What is a possible solution appropriate for the cause identified in question 1c?

Case 2 – Lennox

You remember that Lennox was failing to respond on Day 10. He had a deep, persistent cough and some difficulty breathing. The physician had been treating Lennox for pneumonia with benzylpenicillin, which had been given for 5 days.

Since Lennox was not improving on benzylpenicillin, the physician did a complete examination. He obtained a chest x-ray, which showed a shadow on the lungs. The physician also learned that a relative who lives in Lennox's household has TB.

2a. Lennox's CCP on page 20 shows no weight gain. Has Lennox been taking enough F-100?

2b. What is a possible cause of Lennox's failure to respond?

Tell a facilitator when you are ready for the group discussion.

3. Monitor Overall Weight Gain during the Rehabilitation Phase

Note: *This procedure applies only for the few children that remain in Inpatient Care until full recovery.*

Section 2 discussed problem solving for individual patients. The remaining sections discuss identifying and solving problems for Inpatient Care.

3.1. Compile Data on Weight Gain during the Rehabilitation Phase

Once a month, review records for Inpatient Care for a given week (for example, the first week of the month) and compile data on a Weight Gain Tally Sheet for Inpatient Care Rehabilitation Phase. (See the example below. There is a blank tally sheet in **Annex E**.)

Example of a Weight Gain Tally Sheet for the Rehabilitation Phase

Week of: 9/2/00	**Good weight gain (≥ 10 g/kg/day)**	**Moderate weight gain (5 up to 10 g/kg/day)**	**Poor weight gain (< 5 g/kg/day)**
Number of children on RUTF or F-100 for entire week: 12	Jalika Isatou Nancy Amie	Ebrima Babu Fatemata Sainey Galo Momodou	Fatou Abdouraham
Total number of children	4	6	2
% of children on RUTF or F-100 in Inpatient Care	33%	50%	17%

Take the following steps to complete the tally sheet.

- Identify the children that were on RUTF or F-100 for the entire week. (Only children on RUTF or F-100 are expected to gain weight.)

- Calculate the average daily weight gain for each of these children.
    - Add the daily weight gains recorded on the child's CCP for the 7 days of the week being reviewed. Divide the total by 7.

- Determine if the child's average daily weight gain was poor, moderate, or good during that week.

- Record the child's name in the appropriate column of the tally sheet.

- When the process is complete for each child on RUTF or F-100, total the columns.

- Determine what percentage of the children on RUTF or F-100 had poor, moderate, or good weight gain.
    - Divide the total in each column by the total number of children on RUTF or F-100. Express as a percentage.

Compare the results to tally sheets from similar weeks in other months. Use the tally sheets as a basis for discussion and problem solving with staff. If you cannot complete this review process every month, try to do it at least four times a year.

3.2. Determine if There is a Problem with Weight Gain during the Rehabilitation Phase

If the weight gain of 10% or more of the children on RUTF or F-100 is poor, there is a problem that must be investigated. If there is a negative change as compared to previous months, there may also be a problem. For example, if the percentage of children in the 'moderate' column increases and the percentage in the 'excellent' column decreases, investigate the reasons for this change.

3.3. State the Problem Completely and Specifically

Describe the problem as completely and specifically as possible. Determine if the children that are not gaining weight adequately have certain things in common. For example:

- How long have they been in Inpatient Care?

- What are their ages?

- Are they located in a certain area of Inpatient Care?

- Are they cared for by certain staff?

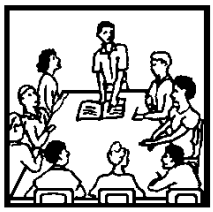
- Are they receiving food or drinks that interfere with prescribed food?

You may think of other questions to ask to determine common factors. If there are no apparent common factors, then assume that the problem is throughout Inpatient Care.

After determining common factors, state the problem specifically, for example, 'Four out of the five children whose mothers are not staying in Inpatient Care have poor weight gain'. If the problem is occurring throughout Inpatient Care, say so, for example, '25% of children in Inpatient Care have poor weight gain'.

Stating the problem specifically will help you look for the causes. Investigating causes by monitoring such aspects as Inpatient Care procedures and food preparation will be discussed in **Section 5**.

Note: *Average daily weight gain can be calculated on a regular basis (e.g., quarterly) on a sample of the CCPs of children with SAM who ended treatment successfully in the Inpatient Care Rehabilitation Phase (discharged cured [fully recovered] of severe wasting and oedema cases separately).*



Exercise C

In this exercise, you will review information on children that have been on RUTF or F-100 for the past 7 days. They have remained in Inpatient Care until fully recovered. You will use a tally sheet to determine whether there is a problem with weight gain in Inpatient Care. There will then be a group discussion.

Information for the Exercise

Twenty children in Inpatient Care have been on RUTF or F-100 for the past 7 days. For 17 of these children, the average daily weight gain for the past 7 days has been calculated. These children's names have already been entered on the tally sheet below.

The CCP excerpts for three children are given on the next page. Follow the instructions on the next page to complete the tally sheet. Check your tally sheet with a facilitator if you wish. Then answer the questions on page 32.

Weight Gain Tally Sheet for Inpatient Care

Week of: *13/4/00*	**Good weight gain (≥ 10 g/kg/day)**	**Moderate weight gain (5 up to 10 g/kg/day)**	**Poor weight gain: (< 5 g/kg/day)**
Number of children on RUTF or F-100 for entire week: *20 children*	*Prakash* *Winston* *Sulayman* *Fatem* *Karamo* *Simeh*	*Lamin* *Rohey* *Jainaba* *Tako* *Aramatoulie* *Ala* *Isaidu* *Kaddy*	*Sanu* *Marianna* *Lalita*
Total number of children			
% of children on RUTF or F-100 in Inpatient Care			

Instructions to Complete Tally Sheet

For each child in rehabilitation phase whose CCP excerpt is given below:

1. Calculate the average daily weight gain in the Rehabilitation Phase for the week of April 13–19, 2010.
    - Add the daily weight gains recorded on the child's CCP for the 7 days of the week being reviewed (dates: 13/4/2010–19/4/2010). Divide the total by 7.

2. Determine if the child's average daily weight gain was poor, moderate, or good during that week.

3. Add the child's name to the appropriate column of the tally sheet.

When you have added all three children to the tally sheet:

4. Total the columns on the tally sheet.

5. Determine what percentage of the children on RUTF and/or F-100 had poor, moderate, or good weight gain. To do this:
    - Divide the total in each column by the total children on RUTF and/or F-100.
    - Express the result as a percentage.

CCP Excerpt 1 – Aruni (Aruni started rehabilitation on April 13)

DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date	*8/4*	*9/4*	*10/4*	*11/4*	*12/4*	*13/4*	*14/4*	*15/4*	*16/4*	*17/4*	*18/4*	*19/4*			
Daily weight (kg)	*4.6*	*4.5*	*4.55*	*4.6*	*4.63*	*4.65*	*4.7*	*4.8*	*4.85*	*4.9*	*5.0*	*5.0*			
Weight gain (g/kg)	*Calculate when on RUTF and/or F-100*				*6.5*	*4.3*	*10.7*	*21.3*	*10.4*	*10.3*	*20.4*	*0.0*			

CCP Excerpt 2 – Kodeh (Kodeh started rehabilitation on April 13)

DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date	*6/4*	*7/4*	*8/4*	*9/4*	*10/4*	*11/4*	*12/4*	*13/4*	*14/4*	*15/4*	*16/4*	*17/4*	*18/4*	*19/4*	
Daily weight (kg)	*5.9*	*5.8*	*5.9*	*5.9*	*6.0*	*6.0*	*6.0*	*6.0*	*6.10*	*6.15*	*6.10*	*6.20*	*6.25*	*6.20*	
Weight gain (g/kg)	*Calculate when on RUTF and/or F-100*				–	–	–	*0.0*	*16.0*	*8.2*	*−8.1*	*16.4*	*8.1*	*−8.0*	

CCP Excerpt 3 – Sohna (Sohna started rehabilitation on April 12)

DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date	*7/4*	*8/4*	*9/4*	*10/4*	*11/4*	*12/4*	*13/4*	*14/4*	*15/4*	*16/4*	*17/4*	*18/4*	*19/4*		
Daily weight (kg)	*7.7*	*7.7*	*7.7*	*7.8*	*7.8*	*8.0*	*8.1*	*8.15*	*8.22*	*8.2*	*8.3*	*8.3*	*8.35*		
Weight gain (g/kg)	*Calculate when on RUTF and/or F-100*				–	*25.6*	*12.5*	*6.17*	*8.6*	*−2.4*	*12.2*	*0.0*	*6.0*		

Questions to Answer and Discuss

1. Does the tally sheet show that there is a problem with weight gain in Inpatient Care?

2. The senior nurse decided to look for common factors among the children that had poor weight gain. She found the following information:

   - Sanu – Arrived 21 days ago, 2 years of age, orphan (no mother at the hospital), cared for by Nurse Rafia
   - Marianna – Arrived 18 days ago, 19 months of age, no mother at the hospital (aunt comes to visit), cared for by Nurse Anjuli
   - Lalita – Arrived 12 days ago, 22 months of age, was on IV at admission and then NGT but now takes feeds orally, moved yesterday to Nurse Rafia's area, mother is present
   - Kodeh – Arrived 14 days ago, 18 months of age, orphan (parents died and a neighbour left Kodeh at the hospital), cared for by Nurse Amalia

   What common factor(s), if any, are there among these children?

3. State the problem as specifically as possible using the information from the tally sheet and the information gathered by the senior nurse.

4. Do the common factors among the children with poor weight gain suggest a possible cause of the problem? If so, what is a possible cause? What further investigation may need to be done to investigate causes?

Tell a facilitator when you are ready for the group discussion.

4. Monitor Patient Outcomes

4.1. Record Each Patient's Outcome on the CCP Record

The last page of the CCP has a space for recording patient outcomes. Record the outcome for the patient whether or not it is successful. Also record any relevant comments, such as circumstances and causes of adverse outcomes.

Successful Outcomes

- Referred to Outpatient Care
    - Child whose condition stabilised is referred to Outpatient Care to continue treatment as soon as his or her appetite has returned and:
        - Child is eating more than 75% of daily prescription of RUTF and starts to gain weight
        - Medical complication is resolving
        - Bilateral pitting oedema is decreasing
        - Child is clinically well and alert

- Cured
    - Child who stayed in Inpatient Care until full recovery for special reasons
        - Child meets discharge criteria of 15% target weight gain and does not have bilateral pitting oedema for 3rd consecutive day absent

      (These children will be the special cases that were not referred to Outpatient Care earlier and therefore had to complete treatment in Inpatient Care.)

Adverse Outcomes

- Defaulted (early discharge against advice)
    - Child who is absent for two consecutive days (absent on the third day)
    - Child's outcome is not known (the child's condition or outcome should be investigated by a home visit; the child could have died)

- Non-recovered
    - Child who remained in Inpatient Care but does not reach discharge criteria after 4 months (16 weeks) in treatment; medical investigation for non-response to treatment should have been done previously

- Death
    - Child who died while in Inpatient Care; the following information should be noted in case of death:
        - Apparent cause of death
        - Number of days after admission the child died
        - Time of day or night that death occurred
        - Other relevant circumstances

Example from the CCP

<table>
<tr><td colspan="3">PATIENT OUTCOME</td></tr>
<tr><td></td><td>DATE</td><td>CIRCUMSTANCES/COMMENTS</td></tr>
<tr><td>Referral to Outpatient Care</td><td>4/1/2010</td><td>Site: Princes Marie Louise (PML) Outpatient Care

After 10 days in Inpatient Care, the child is doing well; medical complications have stabilised and now has good appetite. The child is referred to Outpatient Care.</td></tr>
<tr><td colspan="3">In case of treatment until full recovery in Inpatient Care, Circle Outcome.</td></tr>
<tr><td>Discharge based on 15% weight gain
Cured</td><td></td><td rowspan="3">Discharge weight equal or above 15% weight gain: Y N

Weight on discharge_____

MUAC on discharge: _____</td></tr>
<tr><td>Early Departure (against advice)
Defaulted</td><td></td></tr>
<tr><td>Referral for Non-Recovered</td><td></td></tr>
<tr><td rowspan="2">Death</td><td rowspan="2"></td><td>Number of days after admission (circle):
< 24 1–3 days 4–7 days > 7 days
Approximate time of death: Day Night</td></tr>
<tr><td>Apparent cause(s):
Had child received IV fluids? Yes No</td></tr>
</table>

4.2. Tag Adverse Outcomes on the CCP

Use a coloured tag or some other means to indicate records with adverse outcomes (that is, death, defaulting, non-recovery), for referrals to Outpatient Care and for discharged cured. The tag will make these records easy to find in the files when you are doing a review.

4.3. Review Patient Records for Common Factors in Adverse Outcomes

Periodically and whenever there is a death review tagged records. Note common factors that would suggest areas where case management practices or Inpatient Care procedures may need to be carefully examined and improved.

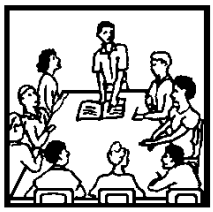
For example, note whether recent deaths have occurred within the first 2 days of admission or later. Deaths that occur within the first 2 days are often due to hypoglycaemia, over-hydration, unrecognised or mismanaged septic shock, or other serious infection. Deaths that occur after 2 days are often due to heart failure; check to see if deaths are occurring during transition to RUTF or F-100.

An increase in deaths occurring during the night or early morning or on weekends suggests that care of children at these times should be monitored and improved. For example, if there are many early morning deaths, it is possible that children are not being adequately covered and fed during the night.

If many mothers are choosing to take their children home after only a few days, look for common reasons. Are the mothers unable to leave other children at home? Is Inpatient Care

uncomfortable for them? Are the staff unfriendly? Early departures also suggest a need to monitor and improve conditions and procedures.

Review of patient records for adverse outcomes can provide a basis for staff to discuss and solve problems. A process for group problem solving is described in **Section 6** of this module.



Exercise D

In this exercise, you will review excerpts from the CCPs of three children that died. You will review the circumstances of the deaths and determine whether there are common factors.

Study the CCP excerpts for Kofi, Vijay, and Luca on the following pages. Answer and be ready to discuss the following questions.

1. What are the circumstances of each child's death?

   Kofi –

   Vijay –

   Luca –

2. Are there common factors among the three deaths? If so what are they?

3. What areas of case management practices or Inpatient Care procedures need to be monitored to find related problems and causes?

Tell a facilitator when you are ready for the group discussion.

Name: Kofi Sex: (M) F Age (months): 15months Date of Admission: 4/6/01 Time: 12:00 Hospital ID Number: 671

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given: Critical was given normal saline IV in emergency room due to low plasma sodium

ADMISSION AS: Old Case (*from Outpatient, Inpatient Care or other*) New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? (0) + ++ +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 6.3kg MUAC (cm): 10.8 cm

TEMPERATURE: 36 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4 mmoL/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 9 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation (Corneal clouding) Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	(200,000 IU)

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes No

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 75 **ml F-75* Time first fed:** 16:00

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT
*** Stop ReSoMal if signs of rehydration appear:* Passing urine, moist tongue, making tears, not thirsty. **However,** *if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*
****Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids
Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ **kg** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose

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

Name: Kofi Sex: (M) F Age (months): 15 months Date of Admission: 4/6/01 Time: 12:00 Hospital ID Number: 671

MONITORING RECORD

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

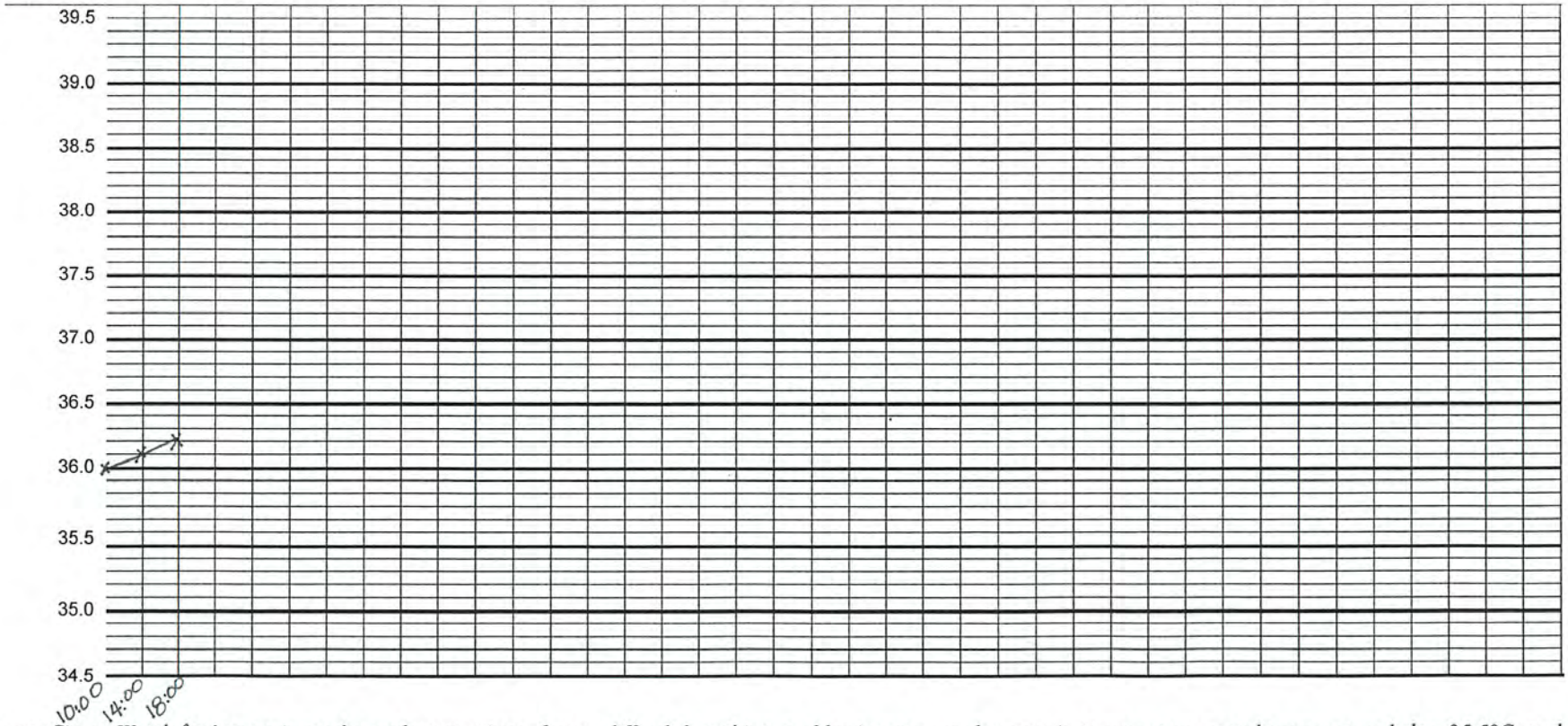
RESPIRATORY RATE

Breaths/ minute	30	35	50																																				

PULSE RATE

Beats/ minute	90	95	115																																					

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 and normal ranges of pulse and respiration rates listed in the Inpatient Care Job Aids.

Name: Kofi Sex: (M) F Age (months): 15 months Date of Admission: 4/6/01 Time: 12:00 Hospital ID Number: 671

COMMENTS/OUTCOME

COMMENTS

IV begun in emergency room, was continued to manage dehydration untill 16:00pm 4/6

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

IMMUNISATIONS

Immunisation card/Child Health Record? Yes No
Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	At birth	—	—	—
Polio	At birth	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	6 weeks	10 weeks	14 weeks
Measles	6–9 months (if SAM)	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
(Death)	4/6/01	Number of days after admission (circle): (<1) 1–3 4–7 >7 Approximate time of death: Day Night Apparent cause(s): unknown/severe malnutrition Had child received IV fluids? (Yes) No

Name: Vijay Sex: (M) F Age (months): 24 months Date of Admission: 5/10/01 Time: 8:00 Hospital ID Number: 750

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given: IValbumin and diuretic (furoximide) given for low albumin and oedema.

ADMISSION AS: Old Case (from Outpatient, Inpatient Care or other), New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 + (++) +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 8.1 kg MUAC (cm): 11.0 cm

TEMPERATURE: 36.5 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4 mmol/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 90 **ml F-75* Time first fed:** 12:00

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time																
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 in special cases by NGT
*** Stop ReSoMal if signs of rehydration appear:* Passing urine, moist tongue, making tears, not thirsty. **However,** *if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*
****Stop ReSoMal if any sign of over-hydration:* Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids
Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ ***kg*** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose

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

Name: Vijay Sex: (M) F Age (months): 24 months Date of Admission: 5/10/01 Time: 8:00 Hospital ID Number: 750

COMMENTS/OUTCOME

COMMENTS

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

IMMUNISATIONS

Immunisation card/Child Health Record? Yes No

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	At birth	—	—	—
Polio	At birth	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	6 weeks	10 weeks	14 weeks
Measles	6–9 months (if SAM)	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
(***Death***)		Number of days after admission (circle): (< 1) 1–3 4–7 > 7
		Approximate time of death: (Day) Night
		Apparent cause(s): at death potassium was low, albumin high, oedema +++
		Had child received IV fluids? Yes No

Name: Luca Sex: M (F) Age (months): 18months Date of Admission: 25/12/01 Time: 9:00 Hospital ID Number: 106

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (from Outpatient, Inpatient Care or other), New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 (+) ++ +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 6.8kg MUAC (cm): 10.5cm

TEMPERATURE: 36 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4 mmoL/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).

If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 9.5 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.

**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page

***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 75 **ml F-75* Time first fed:** 12:30

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*						

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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

If diarrhoea, circle signs present:

Lethargic (Thirsty) (Restless/irritable)

(Dry mouth/tongue) No tears (Sunken eyes)

Skin pinch goes back slowly

If diarrhoea and/or vomiting, give ReSoMal. Every 30 minutes for first 2 hours, monitor and give: *5 ml x 6.8 kg (child's wt) = 34 ml ReSoMal

For up to 10 hours, give ReSoMal and F-75 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*

5 to 10 ml x 6.8 kg (child's wt) = 34 to 68 ml ReSoMal

Time	9:30	10:00	10:30	11:00	11:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30		
Resp. rate	35	35	35	35	35	35	35	35	35	35	35	30		
Pulse rate	95	95	95	95	95	95	95	95	95	95	95	90		
Passed urine? Y N		N	N	N	N	Y	N	Y	N	N	Y	N		
Number stools		0	0	1	0	1	0	1	0	0	1	0		
Number vomits														
Hydration signs						moist mouth					not thirsty			
Amount taken (ml)	34	34	30	34	60	F-75	60	F-75	50	F-75	40	F-75		F-75

*Give ReSoMal orally or in special cases by NGT

*** **Stop ReSoMal if signs of rehydration appear:** Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*

******Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids*

Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: 6.9 ***kg*** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin - oral (125 mg/5mL)	5mL Syrup every 8 hours for 5 days	9:30
MALARIA TEST Type/Date/Outcome	**Antimalarial:** Dose/Frequency/Duration	**Time of 1st Dose**
HIV TEST Type/Date/Outcome	**If HIV+, give Cotrimoxazole**	

Name: Luca Sex: M (F) Age (months): 18 months Date of Admission: 25/12/01 Time: 9:00 Hospital ID Number: 1016

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	25/12	26/12	27/12																		
Daily weight (kg)	6.9	6.9	6.9																		
Weight gain (g/kg)	*Calculate daily when on RUTF or F-100*																				
Bilateral pitting oedema 0 + ++ +++	+	+	+																		
Diarrhoea (D) or Vomit (V): O D V	DV	DV	DV																		
FEED PLAN: Type feed	F-75	F-75	F-75																		
# daily feeds	10	12	12																		
Volume to give per feed																					
Total volume taken (ml)	710	750																			
NG Tube Y N																					
Breastfeeding Y N																					
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. Initial when given.*																				
Amoxicillin 9:30	ag	ag	ag																		
5mL 17:30	SS	SS	SS																		
1:30	ag	ag	ag																		
ANTIMALARIAL (note type of drug)																					
FOLIC ACID (5 mg single dose upon admission)	ag	*Give a single dose upon admission*																			
VITAMIN A			*Give day 1, 2, and 15 if child admitted with eye sign or recent measles. Else, give routinely for prevention, single dose on week 4 or upon discharge unless evidence of dose in past one month*																		
ANTIHELMINTHIC *Drug for worms* only give to children > 24 months unless the younger child has worm infestation																					
IRON (if not on RUTF) Give 3mg/kg/day, 2 x daily Give Iron after Malaria treatment	*Begin iron after 2 days on F-100. Do not give when on RUTF.*																				
FOR EYE PROBLEMS											*After 7–10 days, when eye drops are no longer needed, shade boxes for eye drops.*										
Tetracycline eye ointment: 2x daily or **Chloramphenicol eye drops:** 1 drop 4 x daily NONE																					
Corneal Ulceration, As above, plus 1% atropine eye drops: 1 drop 3 x daily NONE																					
Dermatosis 0 + ++ +++	+	+	+																		
Bloody Stool (Yes or No)																					
Ear problems																					
Mouth or Throat problems																					
Bathing, 1% permanganate	////	ag																			
OTHER																					

Name: Luca Sex: M (F) Age (months): 18months Date of Admission: 25/12/01 Time: 9:00 Hospital ID Number: 106

COMMENTS/OUTCOME

COMMENTS

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

IMMUNISATIONS

Immunisation card/Child Health Record? Yes No

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	(At birth)	—	—	—
Polio	(At birth)	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	(6 weeks)	(10 weeks)	14 weeks
Measles	(6–9 months (if SAM)) 25/12/25	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
(***Death***)	27/12	Number of days after admission (circle): < 1 (1–3) 4–7 > 7 Approximate time of death: Day (Night) 4:00 am
		Apparent cause(s): Had child received IV fluids? Yes (No) milk curds coming out of mouth when found: possibly choked on vomit.

4.4. Calculate a Case-Fatality Rate for Inpatient Care

In a big Inpatient Care site (for example, with 100 admissions per month), calculate the case-fatality rate once each month if possible. This will allow improvements or problems to be seen rapidly.

In a small Inpatient Care site (for example, 10 cases per month) or in a Inpatient Care site where the case-fatality rate is moderate or better, the case-fatality rate may be calculated less often (e.g., every 3 months).

To Calculate the Case-Fatality Rate

- Determine the number of patients admitted to Inpatient Care in the past month(s). Also include children that die after arrival in the emergency ward or who die within the first 24 hours of admission.

- Determine the number of those children that were admitted who died in the same time period (month[s]). Wait to count deaths until the outcomes for the children are known. For example, wait until the start of November to count deaths among patients admitted in October.

- Divide the number of deaths by the number of children admitted during that same time period (month[s]) and express the result as a percentage.

For the purposes of this training course, a case-fatality rate of:

> 20% is unacceptable
11–20% is poor
5–10% is moderate
< 5% is acceptable

The case-fatality rate is calculated on a cohort of children that are admitted for treatment of SAM in a time period and who died during the same time period. The case fatality rate is **not** a very sensitive indicator, but it can indicate the severity of illness upon admission or the quality of early care. It can also indicate poor community outreach and active case-finding (and therefore late referral), poor quality of care in Outpatient Care, problems with transportation to Inpatient Care, or other barriers to access. Carefully review the circumstances of deaths and identify and solve related problems to reduce the case-fatality rate.

The objective of a SAM ward should be to achieve
an Inpatient Care case-fatality rate of < 5%.

SHORT ANSWER EXERCISE

Calculate the case-fatality rates for Inpatient Care described below. State whether the rate is unacceptable, poor, moderate or acceptable.

1. Inpatient Care at Central Hospital is small. Over the past 3 months, there have been 32 admissions. Five of these children died.

2. City Hospital had 98 admissions with SAM in October. Three of these children died.

3a. Mercy Hospital had 28 admissions to Inpatient Care in June and July. Two of these children died.

3b. In the next 2 months, August and September, Mercy Hospital had 36 admissions to Inpatient Care. Four of these children died.

3c. How does the rate for August and September at Mercy Hospital compare with the previous 2 months? Is there a problem?

Compare your answers to this exercise to the answers given on page 96 at the end of the module.

5. Monitor Case Management Practices and Procedures

Periodically, or to investigate causes of problems, you may need to monitor:

- Case management practices
- Food preparation
- Inpatient Care procedures
- Hygiene

This section provides suggestions for monitoring these items. Monitoring checklists for use in Inpatient Care visits are provided in **Annex B**. Any 'No' answer to a question on the checklist indicates a problem that needs to be corrected.

Monitoring of performance of Inpatient Care is explained in **Section 7** of this module.

5.1. Monitor Case Management Practices

Deaths during initial case management are often the result of well-intentioned but incorrect practice. Monitor to ensure that all clinicians are following the case management practices, particularly during initial treatment. Ensure that emergency room (ER) personnel are also following appropriate practices for children with SAM. Two wall charts are provided in the participants support materials to help Inpatient Care and emergency room staff follow appropriate practices. No checklist is given for monitoring case management, as it would be too lengthy. However, some examples of common incorrect practices to look for are described below.

Common incorrect practices in initial treatment; these can cause death	**Correct practice**
⦸ Child not fed at night	During initial treatment ensure that the child is fed every 2 hours at night. Feeding is never less frequent than every 4 hours.
⦸ IV fluids given even though child is not in shock	Give IV fluids only if there are signs of shock (cold hand plus slow capillary refill or weak/fast pulse).
⦸ IV albumin/amino acids given	Do not give these.
⦸ Diuretics given to treat oedema	Do not give these. Oedema will resolve with correct initial treatment using F-75 with correct minerals and vitamins.
⦸ High protein diet given immediately	Give F-75 until the child stabilises and appetite returns. Do RUTF appetite test and start RUTF and/or F-100 when the child passes the appetite test.
⦸ Antibiotics not given because no clinical signs of infection	Presume infection and give antibiotics to all children with SAM as described in **Module 3, Initial Management** or the standard treatment guidelines.

Common incorrect practices in initial treatment; these can cause death	**Correct practice**
⃠ Standard oral rehydration solution (ORS) used instead of Rehydration Solution for Malnutrition (ReSoMal)	Give ReSoMal to children with SAM with dehydration.
⃠ Child left uncovered at night	Provide a blanket and ensure that the child is covered at night.
⃠ Anaemia treated with iron from admission	Wait to start iron until the child has been on F-100 for 2 days. If child is on RUTF, do not give additional iron because RUTF contains iron. Treat severe anaemia if needed. See Section 1.4 of **Module 3, Initial Management**.

5.2. Monitor Food Preparation

Problems like poor weight gain in Inpatient Care may be due to problems with food preparation. Periodically, or whenever you suspect that there is a problem, carefully observe preparation of feeds. Monitor the following.

- Are ingredients for the recipes available?
- Is the correct recipe used for the ingredients that are available?
- Are ingredients stored appropriately and discarded at appropriate times?
- Are containers and utensils kept clean?
- Do kitchen staff (and those preparing feeds) wash their hands with soap before preparing food?
- Are the recipes for F-75 and F-100 followed exactly? (If changes are made due to lack of ingredients, are these changes appropriate?)
- Are measurements made exactly with proper measuring utensils (e.g., correct scoops)?
- Are ingredients thoroughly mixed (and cooked, if necessary)?
- Is the appropriate amount of oil mixed in (i.e., not left stuck in the measuring container)?
- Is CMV added correctly?

- Is the correct amount of water added to make up 1 L of formula with the recipe? (Staff should **not** add 1 L of water, but just enough to make 1 L of formula.)

- Is the correct amount of water added to make formula with the commercial packages? (Staff should add the package to one or two litres of cooled boiled water. Staff should verify the instructions on the package.)

- Is food served at an appropriate temperature?

- Is the food consistently mixed when served (i.e., oil is mixed in, not separated)?

- Are correct amounts put in the cup for each child?

- Is leftover prepared food discarded promptly?

5.3. Monitor Inpatient Care Procedures

Problems like inadequate weight gain on the ward, early departures and even deaths may be due to inadequate Inpatient Care procedures. Whenever you suspect that there is a problem related to Inpatient Care procedures, observe staff as they do those procedures or review relevant records. Procedures to monitor include the following.

Feeding

- Are correct feeds served in correct amounts?

- Are feeds given at the prescribed times, even on nights and weekends?

- Are children held and encouraged to eat (never left alone to feed)?

- Are children fed with a cup and saucer (never a bottle)?

- Is food intake (and any vomiting/diarrhoea) recorded correctly after each feed?

- Are leftovers recorded accurately?

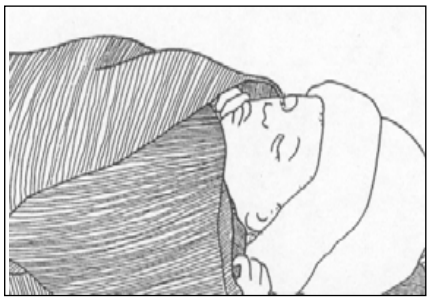
- Are amounts of F-75 kept the same throughout the initial phase, even if weight is lost?

- Is the RUTF appetite test done as soon as appetite returns and medical complications are resolving, and is RUTF offered in the transition phase?

- Is RUTF administered correctly?

- Is drinking water provided with RUTF intake?
- Is the child consuming 75% or more of the required daily intake of RUTF before referral to Outpatient Care?
- For cases that remain in Inpatient Care on F-100 after transition, are amounts of F-100 given freely and increased as the child gains weight?

Warming

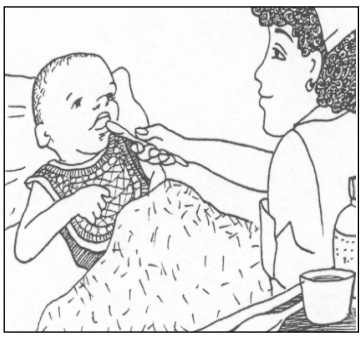


- Is the room kept between 25°C and 30°C (to the extent possible)?
- Are blankets provided and children kept covered at night?
- Are safe measures used for re-warming children?
- Are temperatures taken and recorded correctly?

Weighing

- Are scales functioning correctly?
- Are they standardised weekly? (Check scales as described in **Module 5, Daily Care**.)
- Are children weighed at about the same time each day, 1 hour before or after a feed (to the extent possible)?
- Do staff adjust the scale to zero before weighing children?
- Are children consistently weighed without clothes?
- Do staff correctly read weight to the correct degree of precision?
- Do staff immediately record weights on the child's CCP?
- Are weights correctly plotted on the Weight Chart?

Giving Antibiotics and Other Medications and Supplements



- Are antibiotics given as prescribed (correct dose[s] at correct time[s])?
- When antibiotics are given, do staff immediately make a notation on the CCP?
- Is a single dose of folic acid given upon admission and recorded on the CCP?
- Is vitamin A given according to schedule?
- For children that are on F-100 for 2 days, is the correct dose of iron given daily and recorded on the CCP?

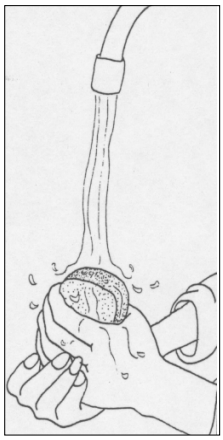
Inpatient Care Environment

- Are surroundings welcoming and cheerful?
- Are mothers offered a place to sit and sleep?
- Are mothers taught and encouraged to be involved in care?
- Are staff consistently courteous?
- As children recover, are they stimulated and encouraged to move and play?

5.4. Monitor Hygiene

Good hygiene is extremely important because children with SAM are highly susceptible to infection. Whenever you suspect that a problem may be related to hygiene, or periodically, visually inspect hygiene in Inpatient Care. Examples of items to monitor are described below inpatient care.

Hand Washing

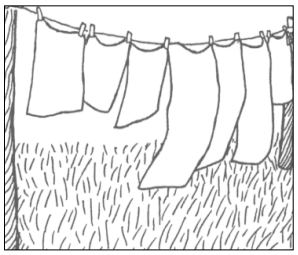


- Are there working hand-washing facilities in Inpatient Care?
- Do staff consistently wash hands thoroughly with soap?
- Are their nails clean?
- Do they wash hands before handling food?
- Do they wash hands between patient visits?

Mothers' Cleanliness

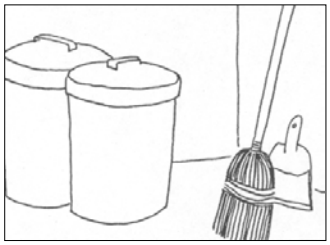
- Do mothers have a place to bathe, and do they use it?
- Do mothers wash hands with soap after using the toilet or changing nappies (diapers)?
- Do mothers wash hands before feeding children?

Bedding and Laundry



- Is bedding changed every day or when soiled/wet?
- Are nappies, soiled towels and rags, etc. stored in bags, then washed or disposed of properly?
- Is there a place for mothers to do laundry?
- Is laundry done in hot water?

General Maintenance

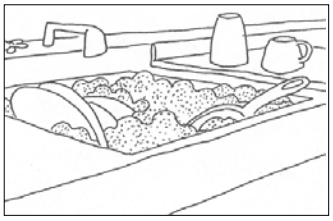


- Are floors swept?
- Is trash disposed of properly?
- Is Inpatient Care kept as free as possible of insects and rodents?

Food Storage

- Are ingredients and food kept covered and stored at the proper temperature?
- Are leftovers discarded?
- Is all therapeutic food stored in a hygienic manner?

Dishwashing



- Are dishes washed after each meal?
- Are they washed in hot water with soap?

Toys

- Are toys washable?
- Are toys washed regularly, and after each child uses them?

5.5. Who should monitor and how often?

Monitoring can be done by trained health care providers from the hospital or trained nutrition officers from the district or regional health bureau.

Three days are usually needed to monitor practices and procedures in Inpatient Care. This would include the on-site problem-solving sessions (see **Section 6** of this module). The frequency of visits for monitoring purposes needs to be discussed at other levels of the system.

5.6. Supportive Supervision and Mentoring (or Coaching)

Supervisors should perform regular supportive supervision visits and use a checklist to systematically cover specific job functions to assess and address service performance (see **Annex B**). At the same time, the supervisor is a mentor and he or she should use the opportunity to provide support to health care providers based on identified needs. Supervisory visits are conducted to help health care providers improve their performance. The visits should be seen as an ongoing part of the capacity development strategy and the motivation of health care providers.

Supervision of the quality of protocol implementation entails monitoring admission and discharge trends and adherence to protocols. Accurate recording and compilation of information regarding admissions, re-admissions, and referrals and discharges from Inpatient Care sites is important. Analysis of Inpatient Care M&R data is essential for the supervisor, as it provides important information about the performance of the site and can be used to take actions to strengthen service quality.

Supervisors should review and discuss the quality of services by verifying challenges and opportunities on the following:

- Admission, referral, and discharge procedures
- Adherence to medical and dietary treatment protocols
- Completion of the CCP and other Monitoring & Reporting tools
- Progress of individual children
- Quality of health and nutrition counselling and education
- Performance of services
- Psychological support to mothers
- Advice on discharge

- Presence of qualified staff
- Workload of staff
- Organisation of the ward
- Hygiene of the ward, children, and mothers
- Supply and stock management
- Access to food for the mothers
- Adherence for free care

5.7. Quality Improvement of the Management of SAM in Inpatient Care

Annex C provides an example of an action plan for QI of the management of SAM in Inpatient Care. Use the action plan matrix and follow the instructions.

6. Solve Problems

There are some problems that require individual solutions and should be handled privately. For example, if you find that a particular staff member is doing a procedure incorrectly or dangerously, correct that person privately.

On the other hand, some problems may be solved by working with staff members as a group to discuss the causes and possible solutions. Examples of problems that could be reviewed as a group include:

- A diarrhoea outbreak in Inpatient Care
- An increasing case-fatality rate
- Procedural problems involving all or many of the staff

Staff may have useful information to contribute on the causes of problems and creative ideas for solutions. They are also more likely to work together toward a solution if they are involved in decision making that affects them.

6.1. Process for Problem Solving in a Group

When conducting a problem-solving session with a group, use the following process as a guide.

1. Welcome everyone to the meeting and explain the purpose. Be careful not to sound like you are threatening or blaming anyone. Stress that you need their ideas to understand the causes of the problem and how to solve it.

2. State the facts of the problem as clearly and completely as possible. Include when, where, and with whom the problem is occurring.

3. Discuss cause(s) of the problem that you have discovered through monitoring. Ask the staff if they agree or disagree with your analysis. Ask the staff if they can think of other possible causes. Ask questions to try to find the ‘root’ causes of the problem. Causes may include:

    - Obstacles (such as lack of time, insufficient staff, or lack of equipment)
    - Lack of motivation (for some reason, staff are not motivated to do a task correctly)
    - Lack of skill or information (staff do not know what to do or how to do it)

The group must avoid blaming particular staff or having the discussion degenerate into a complaint session.

It may be helpful to write down identified causes on a flipchart or large sheet of paper.

4. Ask the staff to help you think of solutions appropriate for the causes. Different causes require different solutions. For example, if there is a problem due to lack of supplies, a solution is to obtain more supplies. If a task is done poorly because staff members do not enjoy it, a solution may be to rotate that task so that everyone takes a turn, but no one has to do it too often. If staff forget how to do a certain task, the solution may be to make a job aid and post it on the wall.

5. Ask staff to think of solutions that they believe will work. Discuss the steps needed to implement the solutions, i.e., who will do what after the meeting.

6. Thank the staff for their ideas. Review what was decided in the meeting.

After the meeting it is important to implement the solutions as quickly as possible. Be sure to give feedback to staff on how the solutions are working. They will want to know if the problem is decreasing or is solved.

Tell a facilitator when you have reached this point in the module.

Exercise E

This exercise will be a role-play of a problem-solving session in Inpatient Care. Your facilitator will assign you a role, such as:

- Physician in charge
- Senior nurse on duty in the morning (Matron)
- Senior nurse on duty in the afternoon
- Night nurse
- Junior auxiliary nurse
- Hospital administrator

You will be given a card describing your knowledge and attitude about the situation being discussed.

One participant (the 'physician in charge') will lead the discussion using the process described in the module. Another will assist by recording on the flipchart. Others will participate in the discussion according to their assigned roles.

The objective is to describe the problem clearly, discuss possible causes, identify the most likely causes, and identify possible solutions.

7. Monitor and Report on Inpatient Care and CMAM Services

A well-designed M&R system is an essential component in CMAM. M&R focuses on children 6–59 months because they are the primary target group for treatment.

With well-informed monitoring data, aspects of the management of SAM that need improvement can be identified in a timely manner. Appropriate action then can be taken to improve on individual care, organisation of care, and overall quality of care.

Notes:

- *Reporting is based on calendar months. Therefore, 1 month usually covers 4 weeks. Occasionally, 1 month covers 5 weeks. This has to be taken into consideration when interpreting trends.*

- *In case a large proportion of admissions are constituted of age groups (0–5 months, over 59 months, adolescent, or adult), consider M&R on these age-specific groups separately. However, no standardised performance indicators are available.*

7.1. Tools for Monitoring and Reporting

Health Facility Tally Sheet (See Annex E)

Health facility tally sheets are completed by the health care provider at the Inpatient Care site at the end of each week. Because the Inpatient Care site admits children on a daily basis, it is advisable to keep a daily record of admissions and exits in a notebook.

The health facility tally sheet provides information on weekly new admissions, old cases admitted, discharges, internal movements, and total cases under treatment per site or health facility. All children admitted, referred, and discharged from CMAM are categorised per entry and exit categories (see below and **Annex E**) and then tallied; sex is tallied for all new admissions only.

Entry Categories

Entry categories for Inpatient Care consist of the following.

- **Those in treatment at the start of the week (A)**
  - A number that indicates children 6–59 months who are in treatment at the start of the week; the number should always be equal to total number of children that were in treatment in Inpatient Care at the end of the previous reporting week (those children who are carried forward from the previous week)

- **New cases admissions (B)**
  - New admission ‘child 6–59 months’ (oedema and marasmic kwashiorkor) **(B1)**
  - New admission ‘child 6–59 months’ (MUAC < 11.5 cm) **(B2)**

  - New admission 'other age group' with SAM: infant under 6 months or child 5 years or older **(B3)**

- **Old cases admissions (C)**
  - **Referred from Outpatient Care:** children 6–59 months referred from Outpatient Care because their state deteriorated.(Referral is done according to the Action Protocol in Outpatient Care. A child is not counted as a new admission because he or she was already in treatment for SAM.)
  - **Returned defaulter:** child has left the site before ending the treatment and returns to continue the treatment (same episode of illness [SAM])

- **Total admissions (D)**
  - A number that indicates all children 6–59 months who are admitted to receive treatment of SAM **(D = B1 + B2 + B3 + C)**

Summary of Admissions

Total start of week (A)
New cases 6–59 months (oedema and marasmic kwashiorkor) **(B1)**
New cases 6–59 m (MUAC < 11.5 cm) (**B2**)
New cases other (infants < 6 months, children > 59 months with MUAC < 11.5 cm or oedema) **(B3)**
Old cases: referred from other Outpatient Care or Inpatient Care; or Returned defaulter **(C)**
TOTAL ADMISSIONS (D = B1 + B2 + B3 + C)

Exit Categories

Exit categories for Inpatient Care consist of the following.

- **Discharges (E)**
  - **Cured:** Children who reached the discharge criteria after treatment and full recovery in Inpatient Care, those children who attain 15 percent target weight while in Inpatient Care, infants under 6 months who re-lactate or attain 15 percent target weight **[E1]**
  - **Died:** Children who died while receiving treatment in Inpatient Care **[E2]**
  - **Defaulted:** Children who left Inpatient Care before reaching the discharge criteria, children were absent for 2 consecutive days (third day absent) **[E3]**
  - **Non-recovered:** Children who do not meet the discharge criteria after 4 months (16 weeks) in Inpatient Care (after medical investigation done) **[E4]**

- **Total Discharges (E = E1 + E2 + E3 + E4)**
  - A number that indicates all children 6–59 months who leave Inpatient Care as cured until full recovery, died, defaulted, or non-recovered
  - The number of total discharges is used as a denominator to calculate performance indicators for the cured, death, defaulter, and non-recovery rates (you will learn about this later in this module)

Summary of Discharges

Cured **(E1)**
Died **(E2)**
Defaulted **(E3)**
Non-Recovered **(E4)**
Total Discharges (E = E1 + E2 + E3 + E4)

- **Referral to Outpatient Care or Inpatient Care (F)**
  - **To Outpatient Care:** The child's condition has stabilised, i.e., appetite has returned and the medical complication is resolving. The child is referred to Outpatient Care to continue treatment at home. The child is **not** counted as discharged from CMAM because he or she has not yet reached the discharge criteria and continues treatment. (***Note:*** *The child re-enters Outpatient Care as a referral, or old case.*)
  - **To Inpatient Care:** Referral to Inpatient Care will include those children referred to a higher medical facility to continue with care. For example, a child might be referred from a district hospital to a regional or national referral hospital for further medical investigations.

- **Total Exits (G = E + F)**
  - Those children that leave Inpatient Care in the particular week of reporting
    - Includes **Total Discharged (E)** from Inpatient Care plus children **Referred (F)** to Outpatient Care after stabilisation or those referred to Inpatient Care for further investigation

Summary of Exits

Total discharges **(E = E1 + E2 + E3 + E4)**
Referrals to Outpatient Care **(F)**
TOTAL EXITS (G) (G = E + F)

- **Total in treatment at the end of the week (H) (H = A + D − G)**
  - A number that indicates all children 6–59 months who are still in treatment at the end of the week, used for site and caseload planning. It is the sum of all children 6–59 months who were in treatment at the start of the week **(A)**, plus those who were admitted **(D)**, minus those who were referred and discharged **(G)**. It also provides the start number for the next week's tally column '*Total at the start of the week*'.

Total end of week (A + D − G)

Additional Information

Additional information provided on the health facility tally sheet includes the following.

- A categorisation by gender—the total number of males and females—should only be done for the total new cases (B1 + B2 + B3).

- RUTF stock supplies are also reported at the end of every week based on what is issued to SAM children on the ward.

Summary Additional Information

Additional Information
Males
Females
RUTF quantities (issued during the week) (in packets)
RUTF quantities (balance at the end of the week) (in packets)

Notes:

- *If using commercially prepared products, a carton of RUTF contains 150 packets, a carton of pre-packaged F-75 has 20 packets, a carton of F-100 has 30 packets, and a carton of ReSoMal has 130 packets.*

- ***Sex** is tallied for all children 6–59 months with SAM who are newly admitted.*

Reporting Weeks for the Management of SAM

Weekly tallies follow the calendar weeks. The calendar weeks are used to define each calendar month for reporting. The tables below provide an example.

Example: January 2010 consists of Weeks 2–5, starting on January 4 and ending on January 31

	January 2010						
	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.
Week 1					1	2	3
Week 2	4	5	6	7	8	9	10
Week 3	11	12	13	14	15	16	17
Week 4	18	19	20	21	22	23	24
Week 5	25	26	27	28	29	30	31

In the above example, **Week 1** of January 2010 would be January 1–3, **Week 2** is January 4–10, **Week 3** is January 11–17, **Week 4** is January 18–25, and **Week 5** is January 25–31.

In some cases, a month may end in the middle of a week. In that case, the reporting week should also end on the particular day that the month ends, and the new week starts on the first day of the following month. For example, the last day of December 2009 was on a Thursday. Therefore, Week 5 of the month of December runs from December 28 to 31 (only 4 days). Week 1 of January 2010 starts on Friday, January 1, and will only have 3 days, as shown in the calendar example above.

The following is an example of completed tallies on a monthly tally sheet for the month of January 2010.

Week	**1**	**2**	**3**	**4**	**5**	**TOTAL**
Date	1–3/01/10	4–10/01/10	11–17/01/10	18–24/01/10	25–31/01/10	

A week should always end on a Sunday and start on Monday, except in the cases where the month ends or starts in the middle of the week. Inpatient Care staff should therefore make a routine of consolidating weekly tallies every Monday.

The site tally sheet is completed by the responsible health care provider and covers weeks of a calendar month (indicating 4 or 5 weeks). The tally sheet provides a summary at the end of the month that makes it easy to fill in the monthly site report.

Site tally sheets are regularly checked by a supervisor for accuracy. The tally information can help identify differences in affected sex, age groups, type of SAM, and trends.

Note: *For ease with reporting, it is advisable to use a notebook that tracks SAM children admitted (entry) and exits from inpatient care. Where possible, the hospital admissions and exit book can be used to track children with SAM. The following indicators should be included in the notebook.*

Serial #	**Hospital #**	**Name of Child**	**Age**	**Sex**	**Name of Mother**	**Community**	**Admission Date**	**Admission Criteria** *(MUAC < 11.5 cm and/or bilateral pitting oedema or other)*	**Exit Date**	**Exit Outcome** *(Cured, Died, Defaulted, Non-Recovered or Referral)*	**Remarks**

Health Facility Report for SAM (see Annex E)

The monthly site report is completed monthly with inputs from the site tally sheet. The monthly report provides a summary of quantitative information to assess performance, monitor trends, and identify areas that require investigation at the health facility level.

The information found on the health facility report for SAM includes:

- Total number in treatment at the start of the month
- Admissions as new cases
- Admissions as old cases (incoming referrals and returned defaulters)
- Total admissions of the month
- The number and proportion of children 6–59 months who are discharged cured (until full recovery), died, defaulted, or non-recovered
- Total discharges
- Total referrals to Outpatient Care
- Total exits from the site
- Total number in treatment at the site at the end of the month
- Sex distribution for all new admissions for children 6–59 months

Each health facility with a CMAM site should send the monthly site report to the district where it is compiled and sent to the region and finally to the national level. Monthly site reports are regularly checked by a supervisor for accuracy.

Tell a facilitator when you have reached this point. When everybody is ready, there will be a demonstration of how to use the Health Facility Tally Sheet and Report Form.

Health Facility Tally Sheet for the Management of SAM

HEALTH FACILITY: City Hospital DISTRICT: East City District

FACILITY TYPE (Inpatient or Outpatient): Inpatient MONTH: February, 2010

Week	1	2	3	4	5	TOTAL
Date	7/02/10	14/02/10	21/02/10	28/02/10	–	
Total start of week (A)	0	3	3	3	–	
New Cases 6–59 m (Oedema) (B1)	2	0	0	0	–	2
New Cases 6–59 m (MUAC < 11.5 cm) (B2)	1	0	0	1	–	2
New Cases Other (> 59 months with MUAC <11.5 cm or Oedema, Infants< 6 months) (B3)	0	1	0	0	–	1
Old Cases: Referred from other Outpatient or Inpatient Care; or Returned defaulter (C)	0	0	1	0	–	1
TOTAL ADMISSIONS (D=B1+B2+B3+C)	3	1	1	1	–	6
Cured (E1)	0	0	0	0	–	0
Died (E2)	0	0	1	0	–	1
Defaulted (E3)	0	0	0	2	–	2
Non-Recovered (E4)	0	0	0	0	–	0
Total Discharges (E=E1+E2+E3+E4)	0	0	1	2	–	3
Referrals to other Outpatient or Inpatient Care (F)	0	1	0	1	–	2
TOTAL EXITS (G= E+F)	0	1	1	3	–	5
Total at the end of the week (A+D-G)	3	3	3	1	–	

ADDITIONAL INFORMATION						
Males	3	0	0	1	–	4
Females	0	1	0	0	–	1
RUTF Quantities (Issued during the week) -*In packets/pots*	0	20	15	28	–	
RUTF Quantities (Balance at the end of the week) -*In packets/pots*	150	130	115	87	–	

Health Facility Monthly Report for the Management of SAM

REGION	Greater Accra
DISTRICT	East City District
FACILITY	City Hospital

MONTH/YEAR	February, 2010
TYPE OF MANAGEMENT (CIRCLE)	(Inpatient) / Outpatient
ESTIMATED MAXIMUM CAPACITY	5
ESTIMATED TARGET malnourished children under 5 (based on latest survey data and admission criteria)	

TYPE OF PRODUCT	Quantity at the start of the month	Quantity Received	Amount Consumed	Balance at the end of month
RUTF (in packets)	150	0	63	87
F-75 (in packets)	20	40	18	42
F-100 (in packets)	30	0	6	24
ReSoMal (in packets)	0	130	0	130
CMV (in tins)	0	0	0	0

Total beginning of the month (A)	New Cases (B) 6–59 months (oedema) (B1)	New Cases (B) 6–59 months (MUAC < 11.5 cm) (B2)	New Cases (B) Other (over 59 months with MUAC < 11.5 cm or oedema) (B3)	Old Cases (C) Returned referral from Outpatient Care or Inpatient Care; or Returned defaulters	TOTAL ADMISSION (D) (B+C=D)	Discharges (E) CURED (E1)	Discharges (E) DIED (E2)	Discharges (E) DEFAULTED (E3)	Discharges (E) NON-RECOVERED (E4)	Referral (F) to Inpatient Care or Outpatient Care	TOTAL EXITS (G) (E+F=G)	Total at the end of the month (H) (A+D-G=H)
0	2	2	1	1	6	0	1	2	0	2	5	1
						0 %	33.3 %	66.6 %	0 %			
					TARGET (Sphere standards)	>75%	<10%	<15%				

E1: Cured = meets discharge criteria

E3: Defaulted = absent for three consecutive sessions

E4: Non-recovered = does not meet discharge criteria after 4 months in treatment (medical investigation done)

7.2. Performance Indicators for CMAM Services

CMAM Performance

There are three basic sets of indicators for measuring the performance of CMAM services for children 6–59 months, as described in the following section.

- **Output indicators** measure whether a CMAM service has completed the planned activities needed to achieve the established objectives. They are measured as numbers.

- **Process indicators** directly measure the performance of key processes, which in this case relates to the CMAM treatment process.

- **Outcome indicators** measure whether a CMAM service has achieved its objectives and planned outcomes. They are measured as percentages.

Monthly Output Indicators for Inpatient Care at the Health Facility Level

- Number of health care providers trained in Inpatient Care (by sex distribution)

- Report on the use of F-75, F-100, RUTF, ReSoMal, and CMV

- Total number of new admissions

- Total number of children under treatment

Monthly Process Indicators

The following are process indicators that are measured monthly and/or periodically depending on the capacity of inpatient care.

- Cause of death

- Reasons for children absenting, defaulting, or failing to respond to treatment

- Readmission after discharge cured (or relapses)

- Average daily weight gain (AWG) of discharged cured

- Referrals in between facilities (Inpatient Care to Outpatient Care, Outpatient care to Inpatient Care or Inpatient Care to another Inpatient Care for higher level of care)

- Average length of stay (LOS) of children discharged cured or referral to continue care in the outpatient care

Monthly Outcome (Performance) Indicators

- **% discharged cured** (cure rate) = proportion of children discharged cured of total discharged*

- **% discharged died** (death rate) = proportion of children that died when under treatment out of total discharged*

- **% discharged defaulted** (default rate) = proportion of children that are recorded as absent for the third consecutive day in Inpatient Care (and absent for third consecutive week in Outpatient Care) of total discharged*

- **% discharged non-recovered** (non-recovery rate) = proportion of children that do not meet the discharge criteria after 4 months under treatment out of total discharged*

  ** Total number of discharged = cured + died + defaulted + non-recovered*

Performance of Inpatient Care

Inpatient Care site reports calculate performance indicators only for children 6–59 months who remain in CMAM Inpatient Care until full recovery (e.g., in cases where there are large numbers of special cases, if there is no RUTF available). In case absolute numbers are small, results of performance will be expressed in absolute numbers and not translated into percentages.

As a majority of children are referred to Outpatient Care to continue treatment, performance of CMAM services should be analysed as a whole, combining Inpatient Care and Outpatient Care. This can be done at the district, regional, or national level.

The results are compared to international standards (see the table below). International standards should not be taken as absolute, but as flexible levels for warning.

Cut-Offs for CMAM Outcome Indicators Indicating Overall CMAM Performance as Per the Sphere Minimum Standards[2]

	CMAM (Inpatient Care and Outpatient Care)
Cure rate	> 75%
Default rate	< 15%
Death rate	< 10%

[2] The Sphere Project. 2011. *Humanitarian Charter and Minimum Standards in Disaster Response.* Oxford, U.K.: Oxfam.

Exercise F

This exercise will be a group discussion. You are advised to group yourselves such that participants from the same hospital are in the same group.

You will review excerpts from CCPs for children treated in Inpatient Care at Princess Marie Louise Hospital. Pay attention to the Initial Management page and the Comments/Outcome page of the CCP to determine the **entry** and **exit** category in which each patient was classified. As a reference, use the job aid Entry and Exit Categories for Monitoring the Management of Severe Acute Malnutrition in Children 6–59 Months, also found in **Annex D** of this module.

Complete the health facility tally sheet using the information from the CCPs in your groups. After completing a tally sheet for 1 month, summarise the information from the tally sheet onto the monthly facility report for SAM.

When you have finished the exercise,
your facilitator will lead a group discussion on the exercise.

Name: Cynthia Martey Sex: M (F) Age (months): 18 months Date of Admission: 6/01/10 Time: 12:00 noon Hospital ID Number: 164500

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (*from Outpatient, Inpatient Care or other*), (New case)

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? (0) + ++ +++

Dermatosis? (0) + ++ +++ (raw skin, fissures)

Weight (kg): 6.5kg MUAC (cm): 9.5cm

TEMPERATURE: 37.3 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4 mmol/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 7.0 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 70 **ml F-75* Time first fed:** 12:30pm

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT
*** Stop ReSoMal if signs of rehydration appear:* Passing urine, moist tongue, making tears, not thirsty. ***However,*** *if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*
****Stop ReSoMal if any sign of over-hydration:* Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids
Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ ***kg*** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	**Dose/Frequency/Duration**	**Time of 1st Dose**
Gentamicin IV vial containing 20mg (2ml @ 10mg/ml)	4.5 mL Once daily for 7 days	1:00pm
MALARIA TEST 6/01/10 **Type/Date/Outcome** Negative	**Antimalarial:** Tab. Coartem **Dose/Frequency/Duration**	**Time of 1st Dose** 1:00pm
HIV TEST 6/01/10 **Type/Date/Outcome** Non-reactive	**If HIV+, give Cotrimoxazole**	

Name: Cynthia Martey Sex: M (F) Age (months): 18months Date of Admission: 6/01/10 Time: 12:00 noon Hospital ID Number: 164500

COMMENTS/OUTCOME

COMMENTS

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

IMMUNISATIONS

Immunisation card/Child Health Record? Yes No

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	(At birth)	—	—	—
Polio	(At birth)	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	6 weeks	10 weeks	14 weeks
Measles	6–9 months (if SAM)	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
(***Death***)	14/1/10	Number of days after admission (circle): < 1 1–3 4–7 (> 7)
		Approximate time of death: Day (Night)
		Apparent cause(s): unknown, SAM
		Had child received IV fluids? Yes No

Name: Elizabeth Boateng Sex: M (F) Age (months): 11 months Date of Admission: 20/01/10 Time: 9:00 am Hospital ID Number: 166841

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given: child had severe anemia upon referral

ADMISSION AS: (Old Case) (from Outpatient, Inpatient Care or other), New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 (+) ++ +++

Dermatosis? (0) + ++ +++ (raw skin, fissures)

Weight (kg): 7.4 kg MUAC (cm): 10.3

TEMPERATURE: 37.0 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 4mmol/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 2.0 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 80 **ml F-75* Time first fed:** 9:30am

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT

*** **Stop ReSoMal if signs of rehydration appear**: Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*

******Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids*

Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ ***kg*** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin (oral) 125 mg/5mL	5ml Syrup every 8 hrs for 5 days	10:00 am
MALARIA TEST 20/01/10 **Type/Date/Outcome** Negative	**Antimalarial:** Tab. Coartem **Dose/Frequency/Duration**	**Time of 1st Dose** 10:00 am
HIV TEST 20/01/10 **Type/Date/Outcome** Non-reactive	**If HIV+, give Cotrimoxazole**	

Name: Elizabeth Boateng Sex: M (F) Age (months): 11 months Date of Admission: 20/01/10 Time: 9:00 am Hospital ID Number: 166841

COMMENTS/OUTCOME

COMMENTS

Mother ran away from the hospital with the child on the morning of 23/01/10.

Child had diarrhoea on departure. Mother consistently refused blood transfusion, child very anemic.

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

None

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

Outpatient Care Nutrition officer requested to follow up with the child.

24/01/2010

IMMUNISATIONS

Immunisation card/Child Health Record? Yes (No)

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	(At birth)	—	—	—
Polio	(At birth)	(6 weeks)	(10 weeks)	(14 weeks)
PENTA 1, 2, 3	—	(6 weeks)	(10 weeks)	(14 weeks)
Measles	6–9 months (if SAM)	(9 months)	—	—
Yellow Fever	—	(9 months)	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y (N)
Early Departure (against advice) (***Defaulter***)	26/01/10	Weight on discharge 7.5 kg
Non-recovered		MUAC on discharge _____
Death		Number of days after admission (circle): < 1 1–3 4–7 > 7 Approximate time of death: Day Night
		Apparent cause(s): Had child received IV fluids? Yes No

Name: Bless Tetteh Sex: M (F) Age (months): 9months Date of Admission: 24/01/10 Time: 9:00AM Hospital ID Number: 164406

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given: child developed bilateral pitting oedema while receiving treatment in outpatient care.

ADMISSION AS: (Old Case) from (Outpatient), Inpatient Care or other), New case

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? 0 + (++) +++

Dermatosis? 0 (+) ++ +++ (raw skin, fissures)

Weight (kg): 8.2 kg MUAC (cm): 10.5 cm

TEMPERATURE: 36.6 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l)

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 9.0 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible*

Amount for 2-hourly feedings: 90 **ml F-75* Time first fed:** 10:00am

If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.

**If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT

*** Stop ReSoMal if signs of rehydration appear:** Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration

****Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids

Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ **kg** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin (oral)	5ml Syrup every 8 hours for 5 days	4:40pm
Zinovit	5ml daily	4:40 pm
MALARIA TEST 24/01/10 **Type/Date/Outcome** Negative	**Antimalarial:** Tab, Coartem **Dose/Frequency/Duration**	**Time of 1st Dose** 4:40 pm
HIV TEST 24/01/10 **Type/Date/Outcome** Non-reactive	**If HIV+, give Cotrimoxazole**	

Name: Bless Tetteh Sex: M (F) Age (months): 9months Date of Admission: 24/01/10 Time: 9:00 Hospital ID Number: 164406

COMMENTS/OUTCOME

COMMENTS

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

mother counselled on appropriate complementary feeding practices, hygiene practices and continued breast feeding

IMMUNISATIONS

Immunisation card/Child Health Record? (Yes) No

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	At birth	—	—	—
Polio	At birth	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	6 weeks	10 weeks	14 weeks
Measles	6–9 months (if SAM)	9 months mr alafio	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

Bless Tetteh was refferred to Amanfrom Health Center to continue with outpatient care treatment.

The nutrition officer has been contacted to follow up on the child.

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
(Referral to Outpatient Care)	2/2/2010	Site: Amanfrom Health Center
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
Death		Number of days after admission (circle): < 1 1–3 4–7 > 7 Approximate time of death: Day Night
		Apparent cause(s): Had child received IV fluids? Yes No

Name: Portia Mame Sex: M (F) Age (months): 7months Date of Admission: 26/01/10 Time: 8:00am Hospital ID Number: 151903

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (*from Outpatient, Inpatient Care or other*), (New case)

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? (0) + ++ +++

Dermatosis? (0) + ++ +++ (raw skin, fissures)

Weight (kg): 3.9kg MUAC (cm): 9.6cm

TEMPERATURE: 37 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l)

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).

If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 6.0 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.

**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page

***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	50,000 IU
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible* (F-100-D)

Amount for 2-hourly feedings: 65 **ml F-75* Time first fed:** 8:30am

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

***If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT

*** **Stop ReSoMal if signs of rehydration appear:** Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration*

****Stop ReSoMal if any sign of over-hydration:** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids*

***Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight:** _____ **kg** (record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	Dose/Frequency/Duration	Time of 1st Dose
Amoxicillin - Oral (125mg/5mL)	5ml Syrup every 8 hours for 5 days	9:00 AM
MALARIA TEST 26/01/10 **Type/Date/Outcome** Negative	**Antimalarial:** Tab, Coartem **Dose/Frequency/Duration**	**Time of 1st Dose** 9:00am
HIV TEST 26/01/10 **Type/Date/Outcome** Non-reactive	**If HIV+, give Cotrimoxazole**	

Name: Portia Mame Sex: M (F) Age (months): 7months Date of Admission: 26/01/10 Time: 8:00am Hospital ID Number: 151903

COMMENTS/OUTCOME

COMMENTS

On discharge Portia had good appetite and was able to eat RUTF.
Portia's weight on discharge was 4.3 kg

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

- Appropriate Complimentary feeding
- Hygiene
- RUTF Key messages

IMMUNISATIONS

Immunisation card/Child Health Record? (Yes) No
Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	(At birth)	—	—	—
Polio	(At birth)	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3		6 weeks	10 weeks	14 weeks
Measles	(6–9 months (if SAM)) PC 10/2/10	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

Mother asked to report at Amanfrom Health Center for continued Care In outpatient, on Friday 19/02/2010. Ga South Nutrition officer contacted and informed about the child's condition.
Enough RUTF provided for 9 days.

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
(Referral to Outpatient Care)	10/2/10	Site: Amanfrom HC
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain ***Cured***		Discharge weight equal or above 15% weight gain: Y N
Early Departure (against advice) ***Defaulter***		Weight on discharge_____
Non-recovered		MUAC on discharge _____
Death		Number of days after admission (circle): < 1 1–3 4–7 > 7 Approximate time of death: Day Night
		Apparent cause(s): Had child received IV fluids? Yes No

Name: Djanie Patience Sex: M (F) Age (months): 5 months Date of Admission: 26/01/10 Time: 8:00am Hospital ID Number: 261050

INITIAL MANAGEMENT

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

ADMISSION AS: Old Case (*from Outpatient, Inpatient Care or other*), (New case)

VISIBLE SIGNS OF SAM Severe wasting? (Yes) No

Bilateral Pitting Oedema? (0) + ++ +++

Dermatosis? (0) + ++ +++ (raw skin, fissures)

Weight (kg): 2.9 kg MUAC (cm): Not applicable

TEMPERATURE: 36 °C (axillary) rectal

If axillary < 35°C or rectal < 35.5°C, actively warm child. Check temperatures every 30 minutes.

BLOOD GLUCOSE (mmol/l) 3 mmol/L

If < 3 mmol/L and alert, give 50 ml bolus of 10% glucose or sucrose (oral or NGT).
If < 3 mmol/L and lethargic, unconscious, or convulsing, give sterile 10% glucose IV: 5 ml x _____kg (child's wt) = _____ml. *Then give 50 ml bolus by NGT.*

Time glucose given: Oral NGT IV

HAEMOGLOBIN (Hb) (g/dl): 8.0 or Packed cell vol (PCV):

Blood type:

If Hb < 4 g/dl or PCV < 12%, 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/Inflammation Corneal clouding Corneal ulceration

*If eye signs, give vitamin A on day 1, 2 and 15. Record on Daily Care page.
**If corneal ulceration, give atropine eye drops immediately. Record on Daily Care page
***If no eye signs, give vitamin A preventive dose on the 4th week or after full recovery from SAM (upon discharge), record on Comments/Outcome page.

Oral dose of vitamin A:	< 6 months	(50,000 IU)
	6–11 months	100,000 IU
	≥ 12 months	200,000 IU

MEASLES (Yes is circled if the child has measles now or had measles in the past 3 months) Yes (No)

FEEDING *Begin feeding with F-75 as soon as possible* (F-100 -D)

Amount for 2-hourly feedings: 55 **ml F-75* Time first fed:** 8:30AM

**If hypoglycaemic, feed _____ ml F-75 (¼ of the amount above) every half hour for the first 2 hours; continue until blood glucose reaches 3 mmol/L.*

***If child was dehydrated, use the new weight after rehydration to determine amount of F-75.*

Record all feeds on 24-hour Food Intake Chart.

SIGNS OF SHOCK (None) Lethargic/unconscious Cold hand Slow capillary refill (> 3 seconds) Weak/fast pulse

If lethargic or unconscious, plus cold hand, plus either slow capillary refill or weak/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							*					

**If respiratory & pulse rates are slower after 1 hour, repeat same amount IV fluids for 2nd 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, 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)

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. 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 in alternate hours. Monitor every hour. Amount of ReSoMal to offer:*
5 to 10 ml x _____ kg (child's wt) = _____ to _____ ml ReSoMal

Time															
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 in special cases by NGT

*** Stop ReSoMal if signs of rehydration appear*: Passing urine, moist tongue, making tears, not thirsty. **However,** if diarrhoea continues, give ReSoMal after each loose stool to replace stool looses and prevent dehydration

****Stop ReSoMal if any sign of over-hydration:*** Increase in pulse & resp. rates, jugular veins engorges, increase in oedema, puffy eyelids
Once the child is rehydrated, reweigh to determine the amount of F-75 to continue feeding. New weight: _____ ***kg*** *(record the amount of F-75 feeds to be given on the left hand section of this chart)*

ANTIBIOTICS (All received) Drug/Route	**Dose/Frequency/Duration**	**Time of 1st Dose**
Gentamicin IV	2 ml Once daily for 7 days	9:00 AM
Vial containing 20mg (2ml@10mg/ml)		

MALARIA TEST 26/01/10 **Type/Date/Outcome** Negative	**Antimalarial:** — **Dose/Frequency/Duration**	**Time of 1st Dose**
HIV TEST – **Type/Date/Outcome** –	**If HIV+, give Cotrimoxazole**	

Name: Djanie Patience Sex: M (F) Age (months): 5 months Date of Admission: 26/01/10 Time: 8:00am Hospital ID Number: 261050

COMMENTS/OUTCOME

COMMENTS

Patience successfully re-lactated, was gaining an average of 30g per day. Weighed 4.0kg at discharge.

COUNSELLING GIVEN TO PARENTS/CAREGIVERS

- Breastfeeding, appropriate positioning and attachment
- Complementary feeding at 6 months

IMMUNISATIONS

Immunisation card/Child Health Record? Yes No

Circle immunisations already given. Initial and date by any given in hospital.

Immunisation	At Birth	First	Second	Third
BCG	(At birth)	—	—	—
Polio	(At birth)	6 weeks	10 weeks	14 weeks
PENTA 1, 2, 3	—	6 weeks	10 weeks	14 weeks
Measles	6–9 months (if SAM)	9 months	—	—
Yellow Fever	—	9 months	—	—
Rotavirus *and* Pneumococcal	—	6 weeks	10 weeks	14 weeks

SPECIAL DISCHARGE AND FOLLOW-UP INSTRUCTIONS

Mother was referred to the Child Welfare Clinic (CWC) to continue with growth monitoring of the child.
-The community health nurse responsible for Jame's town has been informed of the child's condition.

PATIENT OUTCOME

	DATE	CIRCUMSTANCES/COMMENTS
Referral to Outpatient Care		Site:
In case of treatment until full recovery in Inpatient Care and/or discharge, Circle Outcome.		
Discharge based on 15% weight gain (Cured)	12/2/10	Discharge weight equal or above 15% weight gain: (Y) N
Early Departure (against advice) ***Defaulter***		Weight on discharge 4.0kg
Non-recovered		MUAC on discharge _____
Death		Number of days after admission (circle): < 1 1–3 4–7 > 7 Approximate time of death: Day Night
		Apparent cause(s): Had child received IV fluids? Yes No

Annex A. Weight Gain Tally Sheet for Inpatient Care Rehabilitation Phase

Week of:	Good weight gain (≥ 10 g/kg/day)	Moderate weight gain (5 up to 10 g/kg/day)	Poor weight gain (< 5 g/kg/day)
Number of children on RUTF or F-100 for entire week:			
Total number of children			
% of children on RUTF or F-100 in Inpatient Care			

Annex B. Monitoring Checklists for Inpatient Care

Checklist for Monitoring Food Preparations

OBSERVE	YES	NO	COMMENTS
Are ingredients for the recipe available?			
Is the correct recipe used for the ingredients that are available?			
Are ingredients stored appropriately and discarded at appropriate times?			
Are containers and utensils kept clean?			
Do kitchen staff (and those preparing feeds) wash their hands with soap beforehand?			
Are the recipes for F-75 and F-100 followed exactly? (If changes are made due to lack of ingredients, are these changes appropriate?)			
Are measurements made exactly with proper measuring utensils (e.g., correct scoops)?			
Are ingredients thoroughly mixed (and cooked, if necessary)?			
Is the appropriate amount of oil remixed in (i.e., not left stuck in the measuring container)?			
Is CMV added correctly?			
Is correct amount of water added to make up a litre of formula with the recipe? (Staff should **not** add 1 L of water, but just enough to make 1 L of formula.) Is correct amount of water added to make formula with the commercial packages? (Staff should add the package to 1 or 2 L of cooled boiled water. Staff should verify the instructions on the package.)			
Is food served at an appropriate temperature?			
Is the food consistently mixed when served (i.e., oil is mixed in, not separated)?			
Are correct amounts put in the dish for each child?			
Is leftover prepared food discarded promptly?			
Other			

Checklist for Monitoring Ward Procedures

OBSERVE	YES	NO	COMMENTS
Feeding			
Are correct feeds served in correct amounts?			
Are feeds given at the prescribed times, even on nights and weekends?			
Are children held and encouraged to eat (never left alone to feed)?			
Are children fed with a cup and saucer (never a bottle)?			
Is food intake (and any vomiting/diarrhoea) recorded correctly after each feed?			
Are leftovers recorded accurately?			
Are amounts of F-75 kept the same throughout the initial phase, even if weight is lost?			
Is the RUTF appetite test conducted as soon as the children's appetite returns and medical complications are resolving?			
Is RUTF offered in the transition phase?			
Is RUTF administered correctly?			
Is drinking water provided with RUTF intake?			
Is the child consuming 75% or more of the required daily intake of RUTF before referral to Outpatient Care?			
For cases that remain in Inpatient Care on F-100 after transition, are amounts of F-100 given freely and increased as the child gains weight?			
Warming			
Is the room kept between 25° C and 30° C (to the extent possible)?			
Are blankets provided and children kept covered at night?			
Are safe measures used for re-warming children?			
Are temperatures taken and recorded correctly?			
Weighing			
Are scales functioning correctly?			
Are scales standardised weekly? (Check scales			

OBSERVE	YES	NO	COMMENTS
as described in **Module 5. Daily Care**.)			
Are children weighed at about the same time each day, 1 hour before or after a feed (to the extent possible)?			
For children that are on F-100 for 2 days, is the correct dose of iron given daily and recorded on the CCP?			
Do staff adjust the scale to zero before weighing?			
Are children consistently weighed without clothes?			
Do staff correctly read weight to the correct degree of precision?			
Do staff immediately record weights on the child's CCP?			
Are weights correctly plotted on the Weight Chart?			
Giving antibiotics and other medications and supplements			
Are antibiotics given as prescribed (correct dose[s] at correct time[s])?			
When antibiotics are given, do staff immediately make a notation on the CCP?			
Is folic acid given daily and recorded on the CCP?			
Is vitamin A given according to schedule?			
Ward environment			
Are surroundings welcoming and cheerful?			
Are mothers offered a place to sit and sleep?			
Are mothers taught and encouraged to be involved in care?			
Are staff consistently courteous?			
As children recover, are they stimulated and encouraged to move and play?			

Checklist for Monitoring Hygiene

OBSERVE	YES	NO	COMMENTS
Hand-washing			
Are there working hand-washing facilities in the ward?			
Do staff consistently wash their hands thoroughly with soap?			
Are their nails clean?			
Do they wash their hands before handling food?			
Do they wash their hands between patient visits?			
Mothers' cleanliness			
Do mothers have a place to bathe, and do they use it?			
Do mothers wash their hands with soap after using the toilet or changing nappies (diapers)?			
Do mothers wash their hands before feeding children?			
Bedding and laundry			
Is bedding changed every day or when soiled/wet?			
Are nappies, soiled towels and rags, etc. stored in bag, then washed or disposed of properly?			
Is there a place for mothers to do laundry?			
Is laundry done in hot water?			
General maintenance			
Are floors swept?			
Is trash disposed of properly?			
Is the ward kept as free as possible of insects and rodents?			
Food storage			
Are ingredients and food kept covered and stored at the proper temperature?			
Are leftovers discarded?			
Is all therapeutic food stored in a hygienic manner?			

OBSERVE	YES	NO	COMMENTS
Dishwashing			
Are dishes washed after each meal?			
Are they washed in hot water with soap?			
Toys			
Are toys washable?			
Are toys washed regularly, and after each child uses them?			

Annex C. Example of an Action Plan for Quality Improvement of the Management of SAM in Inpatient Care

Use the matrix on the following pages and follow the instructions.

For each activity, ask yourself:

- 'Do we do this now?' If yes, put a check under 'Current Status'. If no, write in what you do now.
- 'What must we do to start this activity?' Consider all the actions that are needed to introduce each change and write them in.
- 'Who will take responsibility for seeing that these actions are carried out? And by when?'
- 'What new resources will we need?'
- 'Who will take responsibility for getting these resources? And by when?'

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Malnourished children need care that is <u>different</u> from the care provided to other children.							
Prioritise severe wasting or oedema in the outpatient department (OPD) queue.	There is no triage.	Consider training layperson to triage in OPD queue. When Integrated Management of Neonatal and Childhood Illness (IMNCI) comes on stream, train nurse to triage children under 5 in OPD.					
Have a separate room or corner for severe malnutrition.	None.	Organise a separate corner. Consider having special coloured registration cards. To denote children for malnutrition treatment protocol.			Height board. Check local UNICEF office to see if they can help.		
Step 1. Prevent/treat hypoglycaemia							
Admit quickly from OPD to the ward.	Yes.						
Feed every 2 hours day and night. Feed on time.	Feed 3 times per day. Last feed 19:00. Breakfast 6:00. Acute staff shortage (2 nurses for 80 beds at night; 2–3 in the day).	Maintain 3-hourly feeds, but feed the very sick every 2 hours. Problem-solve frequent feeds. Community leaders may be able to stress importance of someone accompanying child.			Need to involve mothers more in feeding and to wake them at night. Currently most mothers return home to look after fields, etc., so they need a change of attitude.		
Start straightaway	Not done. (Long walk from home to hospital so hypoglycaemia is likely.)	Give 50 ml 10% glucose to all on arrival.					

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
All staff know danger signs: - has low temperature - feels cold - becomes drowsy	Not known.	Train staff. Consider making wall chart of danger signs.					
Give antibiotics.	(Refer to **Step 5**. No action needed here.)						
If hypoglycaemic, give 10% glucose or sucrose solution.	Not given.	Assume hypoglycaemic and give.					
If unconscious give 10% sterile glucose IV.	Not given.	Introduce and make routine.					
Step 2. Prevent/treat hypothermia Feed every 2 hours day and night.	(See Step 1.)						
Cover child with blanket.	Yes.						
Keep room warm: - use heater - exclude draughts	Kept warm. (Patients bring firewood.)						
Change wet clothes and bedding: - have 24-hour linen supply	Yes.						
If hypothermic: Feed straightaway and re-warm with heater or lamp or kangaroo method.	Not always done.	Train staff so correct procedures are routinely practised.					

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Step 3. Treat/prevent dehydration							
Rehydrate orally except in shock.	No.	Train physicians, relevant staff, especially in emergency areas. Consider wall charts of correct treatment.					
Staff know:							
- how to prepare ReSoMal - how much to give and how often	- No. Use WHO ORS. - No.	Train on why needed, how to prepare, who needs and when to stop.					
Record volume given and time.	Not recorded.	Train.					
All staff know danger signs of over-hydration.	No.	Train.					
Staff monitor pulse and respirations at least hourly during oral rehydration.	Not monitored.	Train.					
To prevent dehydration, give ReSoMal after each watery stool.	Not given.	Train.					
If in shock:							
- give IV 10% glucose	Not given.	Display instructions for treatment of shock in emergency areas.					
- give IV fluids	Yes (type?).						
- monitor pulse and respirations every 5–10 minutes	Not monitored.	Introduce as routine. Train on correct fluids, amount, and duration.					

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Step 4. **Correct electrolyte imbalance**							
Give daily: CMV or mineral mix or potassium chloride or slow K	(Not all have pharmacy.) Not given. Yes (sterile potassium chloride).	Try to organise continuing supply of CMV. Programme manager is discussing with UNICEF. If run out of CMV, use potassium chloride syrup + magnesium sulphate injection.					
Restrict salt.	Yes.						
Do not give diuretics for oedema.	Sometimes given.	Issue orders. Train physicians.					
Step 5. **Treat infections**							
Give antibiotics even if no clinical signs.	Give antibiotics only if have clinical signs.	Change procedure. Train physicians and nurses.					
Give straightaway.	Yes.						
Know what to give, and correct dose.	Yes.						
All staff give on time.	Yes.						
Protect broken skin, for example: - use paraffin gauze - bandage hands if scratching							
If unimmunised, give measles vaccine if over 6 months of age.	?.						

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Prevent cross-infection: - staff and carers know how infection spreads - one child per bed - wash hands - barrier nurse if infectious - boil water for feeds - store feeds in fridge - feed by cup, not bottles - do not share spoons - no flies, rats, etc.	 Carers do not know. Yes. Not always. ?. ?. (No fridge.) ?. ?. Flies present.	Train staff and carers about need for improved practices.					
Step 6. **Treat micronutrient efficiencies** Give: - vitamin A - folic acid - CMV or mineral mix - iron (in catch-up phase) Know correct doses. Do not give iron initially.	 Yes. Not given. (See Step 4.) Yes. Yes. Iron not withheld.	Change procedure.					

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Step 7. Start cautious feeding							
Give F-75 (starter formula).	Not done.	Introduce.			Milk powder + oil + sugar, 1-L blender, dietary scale, fridge.		
Know how much to give.	Not known.	Train staff about all aspects of feeding, including use of laminated cards and recording forms. Will need patience and supervision.					
Chart amounts offered, leftover, taken, vomited.	Not done.				Scan recording forms and print.		
Tube-feed if needed: - know when needed - know how to pass tube - know how to use, e.g., do not push, let feed run in	 Staff do not know. No. No.	Train staff about when to tube feed, and correct techniques.					
Staff know: - what to do if child vomits - to transfer to F-100 when very hungry	 No. No.	Train staff.					
Step 8. Catch-up growth							
Give F-100 catch-up formula (if no RUTF available).	Not given.	Introduce and train.					
Give as much as child can eat at least 6 times/day.	Not done.	Train staff and carers.					
Weigh child daily.	Not weighed.	Introduce and train.					
Plot weight on chart daily.	Not plotted.	Introduce and train.					

Step (Hospital)	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organise changes?		New resources needed	Who will organise resources?	
			Who?	When?		Who?	When?
Step 9. **Give loving care and stimulation**							
Staff and carers give loving care.	Not always.	Encourage if feasible.					
Provide types of play that improve development.	Not provided.	No action now.					
Use everyday activities to improve development.	Not done.	Encourage staff and carers to talk, sing, etc. to children.					
Step 10. **Prepare for follow-up**							
Teach mothers about feeding at home.	Not done.	No action now.					
Teach mothers how to give structured play.	Not done.	No action now.					
Organise referral letter.	Yes. Given follow-up date.						

Annex D. Entry and Exit Categories for Monitoring Children 6–59 Months of Age in CMAM

Inpatient Care for the Management of SAM with Medical Complications	Outpatient Care for the Management of SAM without Medical Complications
Entry Categories	
1. New admission: New cases of children 6–59 months meet admission criteria - including **relapse** after cure **2. Other new admissions:** New cases of infants, children, adolescents, or adults (under 6 months or 5 years or older) need treatment of SAM in Inpatient Care **3. Referral from Outpatient Care:** Child's condition deteriorated in Outpatient Care (according to action protocol) and child needs Inpatient Care	**1. New admission:** New cases of children 6–59 months meet admission criteria - including relapse after cure **2. Other new admissions:** New cases not meeting pre-set admission criteria need treatment of SAM in Outpatient Care **3. Referral from inpatient care:** Cases discharged from Inpatient Care to continue treatment in Outpatient Care **OR Returned** after defaulting **OR Moved in** from other Outpatient Care site
Exit Categories	
1. Discharged cured: (Child 6–59 months meets discharge criteria, i.e., special cases that were not referred to Outpatient Care earlier) Infant under 6 months meets discharge criteria Child 5 years and older meets discharge criteria **2. Died:** Child dies while in Inpatient Care **3. Defaulted:** Child is absent for 2 days **4. Non-recovered:** Child that remained in Inpatient Care does not reach discharge criteria after 4 months in treatment (medical investigation previously done) **5. Referred to Outpatient Care:** Child's condition stabilised and child is referred to Outpatient Care to continue treatment ***Note:*** *Performance indicators for Inpatient Care facilities are only calculated for those who remain in Inpatient Care until full recovery.*	**1. Discharged cured:** Child 6–59 months meets discharge criteria **2. Died:** Child dies while in Outpatient Care **3. Defaulted:** Child is absent for third consecutive visit (3 weeks) **4. Non-recovered:** Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done) **5. Referred to Inpatient Care:** Child's condition deteriorated (according to the action protocol)

Annex E. Health Facility Tally Sheet and Reporting Form for SAM

HEALTH FACILITY TALLY SHEET FOR THE MANAGEMENT OF SAM

HEALTH FACILITY: _____ **DISTRICT:**_____

FACILITY TYPE (Inpatient or Outpatient): _____ **MONTH:** _____

Week	**1**	**2**	**3**	**4**	**5**	**TOTAL**
Date						
Total start of week (A)						
New Cases 6–59 months (Oedema) (B1)						
New Cases 6–59 months (MUAC < 11.5 cm) (B2)						
New Cases Other (> 59 months with MUAC < 11.5 cm or Oedema, Infants <6 months) (B3)						
Old Cases: Referred from other Outpatient Care or Inpatient Care; or Returned defaulter (C)						
TOTAL ADMISSIONS (**D**=B1+B2+B3+C)						
Cured (E1)						
Died (E2)						
Defaulted (E3)						
Non-Recovered (E4)						
Total Discharges (E=E1+E2+E3+E4)						
Referrals to other Outpatient Care or Inpatient Care (F)						
TOTAL EXITS (G=E+F)						
Total at the end of the week (A+D-G)						

ADDITIONAL INFORMATION						
Males						
Females						
RUTF Quantities (Issued during the week) -*In packets/pots*						
RUTF Quantities (Balance at the end of the week) -*In packets/pots*						

HEALTH FACILITY MONTHLY REPORT FOR THE MANAGEMENT OF SAM

REGION	
DISTRICT	
FACILITY	

MONTH/YEAR	
TYPE OF MANAGEMENT (CIRCLE)	***Inpatient*** ***Outpatient***
ESTIMATED MAXIMUM CAPACITY	
ESTIMATED TARGET malnourished children under 5 (based on latest survey data and admission criteria)	

TYPE OF PRODUCT	Quantity at the start of the month	Quantity Received	Amount Consumed	Balance at the end of month
RUTF (in packets)				
F-75 (in packets)				
F-100 (in packets)				
ReSoMal (in packets)				
CMV (in tins)				

Total beginning of the month (A)	**New Cases (B)** 6–59 months (oedema) **(B1)**	6–59 months (MUAC < 11.5 cm) **(B2)**	Other (over 59 months with MUAC < 11.5 cm or oedema) **(B3)**	**Old Cases (C)** Returned referral from Outpatient Care or Inpatient Care; or Returned defaulters	**TOTAL ADMISSION (D) (B+C=D)**	**Discharges (E)** CURED **(E1)**	DIED **(E2)**	DEFAULTED **(E3)**	NON-RECOVERED **(E4)**	**Referral (F)** to Inpatient Care or Outpatient Care	**TOTAL EXITS (G) (E+F=G)**	**Total at the end of the month (H) (A+D-G=H)**
						%	**%**	**%**	**%**			
					TARGET (Sphere standards)	**>75%**	**<10%**	**<15%**				

E1: Cured = meets discharge criteria

E3: Defaulted = absent for three consecutive sessions

E4: Non-recovered = does not meet discharge criteria after 4 months in treatment (medical investigation done)

Answers to Short Answer Exercises

Page 5

1. b

2. b

3. a

4. b

5. b

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1. 7.30 kg – 7.25 kg = 0.05 kg

0.05 kg × 1,000 = 50 grams gained

50 grams ÷ 7.25 = 6.90 g/kg/day

2. 6.25 kg – 6.22 kg = 0.03 kg

0.03 kg × 1,000 = 30 grams gained

30 grams ÷ 6.22 = 4.8 g/kg/day

3. 7.5 kg – 7.6 kg = –0.1 kg

–0.1 kg × 1,000 = –100 grams gained (or 100 grams lost)

–100 grams ÷ 7.6 = –13.16 g/kg/day

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1. 5/32 = 0.156 = 15.6%, poor

2. 3/98 = 0.031 = 3.1%, acceptable

3a. 2/28 = 0.071 = 7.1%, moderate

3b. 4/36 = 0.111 = 11.1%, poor

3c. The case-fatality rate is worse. It has gone from moderate to poor. This is a problem.