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4. Feeding

TRAINING COURSE ON THE MANAGEMENT OF SEVERE MALNUTRITION

WORLD HEALTH ORGANIZATION
DEPARTMENT OF NUTRITION FOR HEALTH AND DEVELOPMENT

TRAINING COURSE ON THE MANAGEMENT OF SEVERE MALNUTRITION

FEEDING

World Health Organization
Department of Nutrition for Health and Development

Training Course on the Management of Severe Malnutrition

was prepared by the

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TRAINING COURSE ON THE MANAGEMENT OF SEVERE MALNUTRITION: FEEDING

Introduction

Feeding is obviously a critical part of managing severe malnutrition; however, as explained in *Principles of Care*, feeding must be started cautiously, in frequent, small amounts. If feeding begins too aggressively, or if feeds contain too much protein or sodium, the child's systems may be overwhelmed, and the child may die.

To prevent death, feeding should begin as soon as possible with F-75, the "starter" formula used until the child is stabilized. F-75 is specially made to meet the child's needs without overwhelming the body's systems at this early stage of treatment. F-75 contains 75 kcal and 0.9 g protein per 100 ml. F-75 is low in protein and sodium and high in carbohydrate, which is more easily handled by the child and provides much-needed glucose.

When the child is stabilized (usually after 2 – 7 days), the "catch-up" formula F-100 is used to rebuild wasted tissues. F-100 contains more calories and protein: 100 kcal and 2.9 g protein per 100 ml.

The contents of F-75 and F-100, and need for these contents, were discussed in *Principles of Care*. This module will focus on preparing the feeds, planning feeding, and giving the feeds according to plan.

Learning Objectives

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

- Preparing F-75 and F-100
- Planning feeding for a 24-hour period for a child who is:
  - taking F-75; or
  - adjusting to F-100 during transition; or
  - feeding freely on F-100.
- Measuring and giving feeds to children
- Recording intake and output
- Planning feeding for a ward

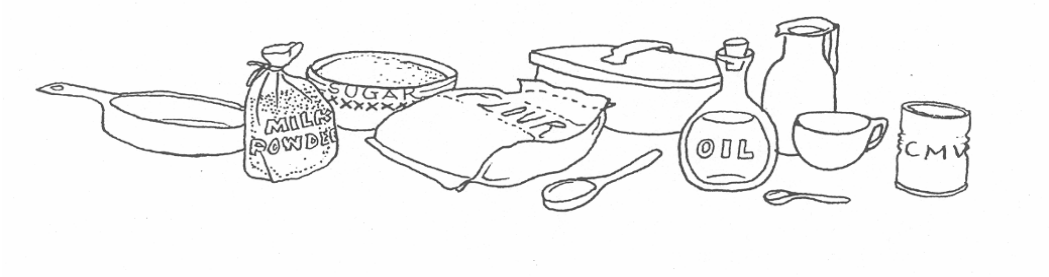
In addition the module will allow you to discuss ideas for training staff at your hospital to do feeding-related tasks.

1.0 Prepare F-75 and F-100

Recipes for F-75 and F-100 were given in *Principles of Care* and are repeated on the next page. In the next exercise, you will prepare F-75 and F-100 using one of these recipes, or a similar recipe used in the severe malnutrition ward that you will visit during this course.

The top three recipes given for F-75 include cereal flour and require cooking. Cooking directions are given on pages 4 and 5.

The bottom three recipes for F-75 can be used if there is no cereal flour or no cooking facilities. However, the recipes with no cereal flour have a high osmolarity (415 mOsmol/l) and may not be tolerated well by some children with diarrhoea.



Tips for correct preparation (all recipes)

- If possible, use a dietary scale that is accurate to at least 5 g. A scale made with its own bowl is convenient. If yours has only a flat platform, choose a suitable container for weighing the ingredients. Weigh the empty container first, and account for this when weighing the ingredients.

  Small plastic bags can be used as containers for dry ingredients. They are so light that their weight can be ignored.

  For measuring oil, choose a small container to reduce the surface to which the oil can stick. Let the oil drain out well when transferring it to the blender or jug. Then rinse the container with a little boiled water and add the rinsings to the blender or jug.

- Be sure that the scale is set at zero before weighing.

- Wash hands before measuring ingredients.

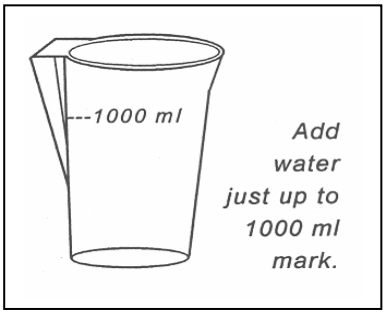
- If using scoops for measurement, level ingredients with a knife to ensure consistent measurement. Be aware that equal weights of milk powder and sugar do not occupy the same volume; milk powder is a bigger volume. Therefore, one must either weigh these ingredients or know the corresponding volume for each. *Tips are continued on page 4.*

Recipes for F-75 and F-100

If you have cereal flour and cooking facilities, use one of the top three recipes for F-75:			
Alternatives	Ingredient	Amount for F-75	
If you have dried skimmed milk	Dried skimmed milk Sugar Cereal flour Vegetable oil Mineral mix* *Water to make 1000 ml*	25 g 70 g 35 g 30 g 20 ml *1000 ml***	
If you have dried whole milk	Dried whole milk Sugar Cereal flour Vegetable oil Mineral mix* *Water to make 1000 ml*	35 g 70 g 35 g 20 g 20 ml *1000 ml***	
If you have fresh cow's milk, or full-cream (whole) long life milk	Fresh cow's milk, or full-cream (whole) long life milk Sugar Cereal flour Vegetable oil Mineral mix* *Water to make 1000 ml*	300 ml 70 g 35 g 20 g 20 ml *1000 ml***	
If you do not have cereal flour, or there are no cooking facilities, use one of the following recipes for F-75:			**No cooking is required for F-100:**
Alternatives	Ingredient	Amount for F-75	Amount for F-100
If you have dried skimmed milk	Dried skimmed milk Sugar Vegetable oil Mineral mix* *Water to make 1000 ml*	25 g 100 g 30 g 20 ml *1000 ml***	80 g 50 g 60 g 20 ml *1000 ml***
If you have dried whole milk	Dried whole milk Sugar Vegetable oil Mineral mix* *Water to make 1000 ml*	35 g 100 g 20 g 20 ml *1000 ml***	110 g 50 g 30 g 20 ml *1000 ml***
If you have fresh cow's milk, or full-cream (whole) long life milk	Fresh cow's milk, or full-cream (whole) long life milk Sugar Vegetable oil Mineral mix* *Water to make 1000 ml*	300 ml 100 g 20 g 20 ml *1000 ml***	880 ml 75 g 20 g 20 ml *1000 ml***

*Contents of mineral mix are given in Appendix 4 of the manual. Alternatively, a commercial product called *Combined Mineral Vitamin Mix (CMV)* may be used.

***Important note about adding water**: Add just the amount of water needed to make 1000 ml of formula. (This amount will vary from recipe to recipe, depending on the other ingredients.) Do not simply add 1000 ml of water, as this will make the formula too dilute. A mark for 1000 ml should be made on the mixing container for the formula, so that water can be added to the other ingredients up to this mark.*



Tips for correct preparation, continued

- Mix oil well so that it does not separate out. Oil is a vital source of energy; if oil floats to the top of the mixture, there is a risk that some children will get too much and others too little. If possible, use an electric blender to thoroughly mix the oil. Otherwise, use a strong rotary whisk or balloon whisk. Use a long whisk so that your hands do not dip into the formula while whisking.

- If there is a change in the type of milk supplied, change to a recipe appropriate for the type of milk available.

- If using Combined Mineral and Vitamin Mix (CMV) read the label carefully to ensure that you use the correct amount for your recipe. For example, if the scoop provided with the CMV is for making 2 litres, use ½ scoop to make 1 litre. Carefully measure to determine the exact amount in ½ scoop.

- Be careful to add the correct amount of water to make 1000 ml of formula. If 1000 ml of water is mistakenly added, the resulting formula will be about 15% too dilute.

Directions for making <u>cooked</u> F-75 with cereal flour (top recipes)

You will need a 1-litre electric blender or a hand whisk (rotary whisk or balloon whisk), a 1-litre measuring jug, a cooking pot, and a stove or hot plate. Amounts of ingredients are listed on the previous page. Cereal flour may be maize meal, rice flour, or whatever is the staple cereal in the area.

It is important to use cooled, boiled water even for recipes that involve cooking. The cooking is only 4 minutes of gentle boiling, and this may not be enough to kill all pathogens in the water. The water should be cooled because adding boiling water to the powdered ingredients may create lumps.

If using an electric blender:

1. Put about 200 ml of the boiled, cooled water into the blender. (If you will use liquid milk instead of milk powder, omit this step.)

2. Add the flour, milk or milk powder, sugar, oil, and mineral mix. Blend.

3. Add cooled, boiled water to the1000 ml mark and blend at high speed.

4. Transfer the mixture to a cooking pot and boil gently for 4 minutes, stirring continuously.

5. Some water will evaporate while cooking, so transfer the mixture back to the blender after cooking and add enough boiled water to make 1000 ml. Blend again.

If using a hand whisk:

1. Mix the flour, milk or milk powder, sugar, oil, and mineral mix in a 1-litre measuring jug. (If using milk powder, this will be a paste.)

2. Slowly add cooled, boiled water up to 1000 ml.

3. Transfer to cooking pot and whisk the mixture vigorously.

4. Boil gently for 4 minutes, stirring continuously.

5. Some water will evaporate while cooking, so transfer the mixture back to the measuring jug after cooking and add enough boiled water to make 1000 ml. Whisk again.

Directions for no-cooking recipes (bottom recipes)

If using an electric blender:

1. Put about 200 ml of the boiled, cooled water into the blender. (If you will use liquid milk instead of milk powder, omit this step.)

2. Add the required amounts of milk or milk powder, sugar, oil, and mineral mix.

3. Add boiled cooled water to the 1000 ml mark and then blend at high speed.*

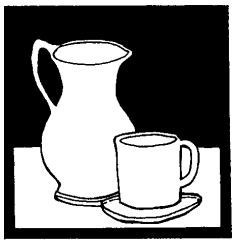
If using a hand whisk:

1. Mix the required amounts of milk powder and sugar in a 1-litre measuring jug; then add the oil and stir well to make a paste. (If you use liquid milk, mix the sugar and oil, and then add the milk.)

2. Add mineral mix, and slowly add boiled, cooled water up to 1000 ml, stirring all the time.*

3. Whisk vigorously.

*Whether using a blender or a whisk, it is important to measure up to the 1000 ml mark before blending/whisking. Otherwise, the mixture becomes too frothy to judge where the liquid line is.



EXERCISE A

In this exercise your group will prepare F-75 and F-100 according to the recipes used in the hospital which you will visit during this course. Your facilitator will give you a copy of the recipes to be used.

Notice the differences in the recipes for F-75 and F-100. You will have a chance to taste each formula.

While preparing the recipes, think about the following issues in relation to your own hospital, and be prepared to discuss them with the group:

- What aspects of preparing these recipes would be difficult in my hospital?
- How can I make sure that the recipes are prepared correctly?
- Are the necessary ingredients available?
- Do any new supplies need to be purchased, such as correctly sized scoops?

2.0 Feed the child with F-75

2.1 Determine frequency of feeds

On the first day, feed the child a small amount of F-75 every 2 hours (12 feeds in 24 hours, including through the night). If the child is hypoglycaemic, give ¼ of the 2-hourly amount every half-hour for the first 2 hours or until the child's blood glucose is at least 3 mmol/l.

Night feeds are extremely important. Many children die from hypoglycaemia due to missed feeds at night. Children must be awakened for these feeds.

After the first day, increase the volume per feed gradually so that the child's system is not overwhelmed. The child will gradually be able to take larger, less frequent feeds (every 3 hours or every 4 hours). Criteria for increasing the volume and decreasing the frequency of feeds will be presented in section 2.6.

2.2 Determine amount of F-75 needed per feed

Given the child's starting weight and the frequency of feeding, use a table to look up the amount needed per feed. You have been given an *F-75 Reference Card* with such a table. A copy of the *F-75 Reference Card* is in Annex A of this module. (The information on the front side of the *F-75 Reference Card* is also in the manual in Table 9 on page 15.)

> Look at your *F-75 Reference Card* now. The front of the card is for severely malnourished children with no oedema, or with mild or moderate oedema. **The reverse side is only for children admitted with severe (+++) oedema**.

On the *F-75 Reference Card*, the required daily amount has been divided by the number of feeds to show the amount needed per feed.

On the front side of the card, notice that the amounts per feed ensure that the child will be offered a total of 130 ml/kg/day of F-75. This amount of F-75 will give the child 100 kcal/kg/day and 1 – 1.5 g protein/kg/day. This amount is appropriate until the child is stabilized.

If the child has severe (+++) oedema, his weight will not be a true weight; the child's weight may be 30% higher due to excess fluid. To compensate, the child with severe oedema should be given only 100 ml/kg/day of F-75. Amounts per feed for the child with severe oedema are shown on the reverse side of the *F-75 Reference Card*.

Tips for using the F-75 Reference Card

- Be sure that you use the correct side of the card. Use the front side for most children, including those with mild or moderate oedema. Use the reverse side only if the child is admitted with severe (+++) oedema.

- Note that children's weights listed on the *F-75 Reference Card* are all in even digits (2.0 kg, 2.2 kg, 2.4 kg, etc.). If a child's weight is between these (for example, if the weight is 2.1 kg or 2.3 kg), use the amount of F-75 given for the next lower weight.

- While the child is on F-75, keep using the starting weight to determine feeding amounts even if the child's weight changes. (The weight is not expected to increase on F-75.)

- If the child starts with severe oedema, continue using the F-75 table for severe oedema for the entire time that the child is on F-75. Also continue using the the child's starting weight to determine the amount of F-75, even when the oedema (and weight) decrease. The volume per feed on the chart is already based on the child's estimated true weight.

SHORT ANSWER EXERCISE

For each child listed below, use your *F-75 Reference Card* to determine the amount of F-75 to give per feed. The starting weight and oedema classification is given for each child, as well as the current frequency of feeds for the child.

Child 1: 6.8 kg, no oedema, 3-hourly feeds
Give _____ml F-75 per feed.

Child 2: 8.5 kg, mild (+) oedema, 2-hourly feeds
Give _____ml F-75 per feed.

Child 3: 5.2 kg, severe (+++) oedema, 2-hourly feeds
Give _____ml F-75 per feed.

Child 4: 7.0 kg, severe (+++) oedema, hypoglycaemia, ½-hourly feeds
Give _____ml F-75 per feed.

Child 5: 9.6 kg, moderate (++) oedema, 4-hourly feeds
Give _____ml F-75 per feed.

Check your own answers to this exercise
by comparing them to the answers given on page 55 at the end of the module.

Tell your facilitator when you have reached this point in the module. When everyone is ready, there will be a group oral drill on determining amounts of F-75 to give.

2.3 Record the child's 24 hour feeding plan

Each child's feeding plan should be recorded on a 24-Hour Food Intake Chart. A blank copy of a 24-Hour Food Intake Chart is provided in Annex B of this module.

At the top of the 24-Hour Food Intake Chart, record the date, the type of feed to be given, the number of feeds per day, the amount to give per feed, and the total to give for the day. The details of each feed will be recorded on this form throughout the day. A completed 24-Hour Intake chart is provided on page 14 of this module.

Information about feeding is also recorded on the CCP. On the Daily Care page of the CCP, record the type of feed to be given (F-75 or F-100) and the number of feeds to be given daily. For example, if the child is on a 2-hourly feeding schedule, record that 12 feeds will be given. At the end of the day, record the total amount taken that day. The CCP will provide a brief summary of feeds, as opposed to the detailed record on the 24-Hour Food Intake Chart.

Example of CCP Excerpt

DAILY CARE

	Week 1							Week 2	
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9
Date	*4/6*	*5/6*	*6/6*						
Daily weight (kg)	*4.4*	*4.2*	*4.0*						
Weight gain (g/kg)	*Calculate daily after on F-100*								
Oedema 0 + ++ +++	*+*	*+*	*0*						
Diarrhoea/vomit 0 D V	*D*	*D*	*0*						
FEED PLAN: Type feed	*F-75*	*F-75*	*F-75*						
# feeds daily	*12*	*8*	*6*						
Total volume taken (ml)	*570*	*560*	*560*						
ANTIBIOTICS									

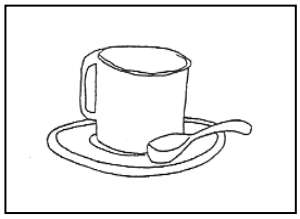
2.4 Feed the child F-75 orally, or by NG tube if necessary

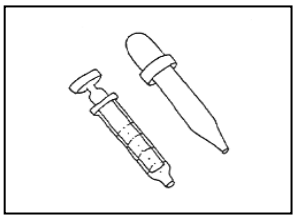
Oral feeding

It is best to feed the child with a cup (and spoon, if needed). Encourage the child to finish the feed. It may be necessary to feed a very weak child with a dropper or syringe. Do not use a feeding bottle.

It takes skill to feed a very weak child, so nursing staff should do this task at first if possible. Mothers may help with feeding after the child becomes stronger and more willing to eat. **Never leave the child alone to feed**. Spend time with the child, hold the child, and encourage him to eat. Catch dribbles by holding a saucer under the cup, as shown in photograph 33 of the *Photographs* booklet. The saucer will allow feeding more quickly without worrying about spilling. At the end of the feed, give the child the amount caught in the saucer.

Feed orally with:





Encourage breastfeeding on demand between formula feeds. Ensure that the child still gets the required feeds of F-75 even if breastfeeding.

Feeding children who have diarrhoea and vomiting

If the child has continuing watery diarrhoea after he has been rehydrated, offer ReSoMal between feeds to replace losses from stools. As a guide, children under 2 years should be given 50 – 100 ml of ReSoMal after each loose stool, while older children should be given 100 – 200 ml. The amount given in this range should be based on the child's willingness to drink and the amount of ongoing losses in the stool.

If the child vomits during or after a feed, estimate the amount vomited and offer that amount of feed again. If the child keeps vomiting, offer half the amount of feed twice as often. For example, if the child is supposed to take 40 ml of F-75 every 2 hours, offer half that amount (20 ml) every hour until vomiting stops.

Nasogastric (NG) feeding

It may be necessary to use a nasogastric (NG) tube if the child is very weak, has mouth ulcers that prevent drinking, or if the child cannot take enough F-75 by mouth. The minimum acceptable amount for the child to take is 80% of the amount offered. At each feed, offer the F-75 orally first. Use an NG tube if the child does not take 80% of the feed (i.e., leaves more than 20%) for 2 or 3 consecutive feeds.

NG feeding should be done by experienced staff. A child with an NG tube is shown in photograph 6. The NG tube should be checked every time food is put down. Check placement by injecting air with a syringe and listening for gurgling sounds in the stomach. Change the tube if blocked. Do not plunge F-75 through the NG tube; let it drip in, or use gentle pressure.

Abdominal distension can occur with oral or NG feeding, but it is more likely with NG feeding. If the child develops a hard distended abdomen with very little bowel sound, give 2 ml of a 50% solution of magnesium sulphate IM.

Remove the NG tube when the child takes:

- 80% of the day's amount orally; or
- two consecutive feeds fully by mouth.

Exception: If a child takes two consecutive feeds fully by mouth during the night, wait until morning to remove the NG tube, just in case it is needed again in the night.

2.5 Record intake and output on a 24-Hour Food Intake Chart

There is an example of a completed 24-Hour Food Intake Chart on the next page.

Instructions for completing chart

In the spaces above the chart, record the child's name, hospital ID number, admission weight and today's weight. (If the child was rehydrated on the first day, list the rehydrated weight as the admission weight.)

On the top row of the chart, record the date, the type of feed to be given, the number of feeds per day, and the amount to give at each feed.

At each feed:

In the left column, record the time that the feed is given. Then record in each column as follows:

a. Record the amount of feed offered.

b. After offering the feed orally, measure and record the amount left in cup.

c. Subtract the amount left from the amount offered to determine the amount taken orally by the child.

d. If necessary, give the rest of the feed by NG tube and record this amount.

e. Estimate and record any amount vomited (and not replaced by more feed).

f. Ask whether the child had watery diarrhoea (any loose stool) since last feed. If so, record "yes".

At the end of 24 hours:

- Total the amount of feed taken orally (column c).
- Total the amount of feed taken by NG tube, if any (column d).
- Total the estimated amount lost through vomit (column e).
- Add the totals taken orally and by NG tube. Then subtract any loss from vomiting. The result is the total volume taken over 24 hours. Record this at the bottom of the 24-Hour Food Intake Chart and on the Daily Care page of the CCP.

Tell a facilitator when you have reached this point. When everyone is ready, there will be a demonstration of how to use the 24-Hour Food Intake Chart.

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Matteu Hospital ID Number: 406 Admission weight (kg): 3.2 kg Today's weight (kg): 3.2 kg

DATE: 4/06/01 TYPE OF FEED: F-75 GIVE: 12 feeds of 35 ml

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a –b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	35	0	35	—		
10:00	35	15	20	—		
12:00	35	15	20	—		
14:00	35	25	10	—	10	
16:00	35	35	0	35		
18:00	35	35	0	35		
20:00	35	30	5	30		
22:00	35	25	10	25		
24:00	35	20	15	20		
2:00	35	10	25	10		
4:00	35	5	30	—		
6:00	35	5	30	—		
		Column totals	c. 200	d. 155	e. 10	Total yes: 0

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – amount vomited (e) = 345 ml

SHORT ANSWER EXERCISE

Answer the following questions about the 24-Hour Food Intake Chart for Matteu on the previous page:

1. At what times did Matteu's feeding day begin and end?

2. How many times was Matteu fed during the 24-hour period?

3. What amount of F-75 was Matteu offered at each feed?

4. At 10:00 did Matteu take enough (80%) of the F-75 orally?

5. At 12:00 did Matteu take enough of the F-75 offered?

6. What apparently happened at the 14:00 feed?

7. How was the feeding method changed at 16:00? Why do you think the staff changed the feeding method?

8. How was Matteu fed from 20:00 to 2:00?

9. At 4:00 and 6:00 did Matteu take enough F-75 orally?

10. What was the total volume of F-75 taken by Matteu over the 24-hour period? Include the amount taken orally and by NG tube, and subtract the amount vomited.

11. Should Matteu's NG tube be removed?

Check your own answers to this exercise by comparing them to the answers given on page 56 at the end of the module.

2.6 Adjust the child's feeding plan for the next day

The total amount of F-75 given per day is based on the admission weight and does not change. (If the child is rehydrated on the first day, use the rehydrated weight.) As the child stabilizes, the child can take more at each feed, and feeds can be less frequent.

Each day, review the child's 24-Hour Intake Chart to determine if the child is ready for larger, less frequent feeds.

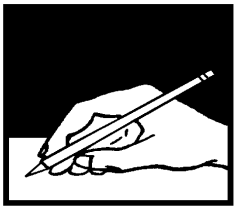
Criteria for increasing volume/decreasing frequency of feeds

- If vomiting, lots of diarrhoea, or poor appetite, continue 2-hourly feeds.

- If little or no vomiting, modest diarrhoea (for example, less than 5 watery stools per day), and finishing most feeds, change to 3-hourly feeds.

- After a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

Compare the total amount of F-75 taken for the day to the 80% column on the *F-75 Reference Card* to confirm that the child has taken enough. If not, NG feeding may be needed. Continue to offer each feed orally first; then use an NG tube to complete the feed if the child does not take at least 80% orally.



EXERCISE B

In this exercise you will review 24-Hour Food Intake Charts and descriptions of children in order to determine their feeding plans for the next day.

Case 1 – Delroy

Delroy was admitted to the severe malnutrition ward with diarrhoea. He had no oedema. At the first two feeds of the day, Delroy was still being given ReSoMal. After he was rehydrated, he began 2-hourly feeds of F-75 at 12:00 noon. His rehydrated weight was 3.8 kg, so he was given 10 feeds of 40 ml each to finish the day. He took all of his feeds very well, although his diarrhoea continued.

Delroy's completed 24-Hour Food Intake Chart for Day 1 is given on the next page. Study the completed chart. Then answer the questions on the facing page about Delroy's feeding plan for Day 2.

Case 1 – Delroy, continued

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Delroy Hospital ID number: 107 Admission weight (kg): 3.8 kg* Today's weight (kg): Same

*rehydrated

DATE: 4/12/01 (Day 1) **TYPE OF FEED:** F-75 **GIVE**: 10 **feeds of** 40 **ml**

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)

12:00	40	0	40			
14:00	40	0	40			
16:00	40	0	40			Yes (small)
18:00	40	0	40			
20:00	40	0	40			
22:00	40	0	40			
24:00	40	0	40			Yes (small)
2:00	40	0	40			
4:00	40	0	40			
6:00	40	0	40			Yes (small)
		Column totals	c. 400 ml	d. 0	e. 0	Total yes: 3

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = 400 ml

Case 1 – Delroy, continued

1a. Since Delroy only had 10 feeds rather than 12, his total food intake cannot be compared to the 80% column on your *F-75 Reference Card*. Instead, look at how much of each feed he took. Did Delroy take at least 80% of each feed?

1b. Although Delroy still has diarrhoea, it is only a small amount. According to the criteria on page 16 of this module, is Delroy ready to change to 3-hourly feeds?

1c. Enter instructions for Delroy's feeding plan for Day 2 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE: _____ feeds of _____ml

1d. Starting with the first feed at 8:00 a.m., list the times at which Delroy will need to be fed on Day 2:

1e. On Day 2 Delroy took most of every feed for a total of 460 ml during the day. He had two diarrhoea stools and no vomiting. His weight has not changed, and there is still no oedema. Record information from Day 2 on the following excerpt from the Daily Care page of the CCP:

	Week 1							Week 2	
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9
Date	*4/12*								
Daily weight (kg)	*3.8*								
Weight gain (g/kg)	*Calculate daily after on F-100.*								
Oedema 0 + ++ +++	*O*								
Diarrhoea/vomit 0 D V	*D*								
FEED PLAN: Type feed	*F-75*								
# feeds daily	*10*								
Total volume taken (ml)	*400 ml*								

Case 2 – Pedro

Pedro weighed 4.8 kilograms when he was admitted to the ward on Day 1. He had no oedema. He was given 12 feeds of 55 ml F-75 on Day 1. Pedro was a reluctant eater, but he finished most of his feeds and changed to 3-hourly feeds (8 feeds per day) on Day 2. On Day 2 Pedro was still reluctant to eat. At two feeds he took less than 80% of the amount offered, but he took more at the next feeds, so an NG tube was never used.

Pedro's completed 24-Hour Food Intake Chart for Day 2 is on the opposite page.

2a. Did Pedro take at least 80% of the expected daily total? (Refer to the last column of the *F-75 Reference Card*.)

2b. Should Pedro continue on 3-hourly feeds on Day 3, or should he change to 4-hourly larger feeds? Why?

2c. Enter instructions for Pedro's feeding plan for Day 3 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE: _____ feeds of _____ml

Case 2 – Pedro, continued

24-HOUR FOOD INTAKE CHART
Complete one chart for every 24-hour period.

Name: Pedro Hospital ID number: 236 Admission weight (kg): 4.8 kg Today's weight: 4.8 kg

DATE: 6/12/01 (Day 2) **TYPE OF FEED:** F-75 **GIVE:** 8 **feeds of** 80 **ml**

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	e. Watery diarrhoea (if present, yes)
8:00	80	10	70			
11:00	80	0	80			yes
14:00	80	0	80			
17:00	80	20	60			
20:00	80	10	70			
23:00	80	10	70			
2:00	80	20	60			
5:00	80	0	80		Half (40 ml)	
		Column totals	c. 570 ml	d. 0	e. 40 ml	Total yes: 1

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = 530 ml

Case 3 – Rositha

When Rositha was admitted, she had severe (+++) oedema. She weighed 6.4 kg and was 66 cm long. She refused to eat, so an NG tube was inserted. On Days 1 and 2 she was given 55 ml of F-75 every 2 hours by NG tube. On Day 3 her weight was down to 6.1 kg and her oedema was moderate (++). Rositha's 24-Hour Feeding Chart for Day 3 is on the opposite page.

3a. At what time did Rositha start taking feeds entirely by mouth?

3b. Rositha's NG tube was left in during the night, although it was not needed. On Day 4 should the NG tube be removed?

3c. Should Rositha continue on 2-hourly feeds on Day 4, or should she change to 3-hourly larger feeds? Why?

3d. On Day 4 Rositha weighs 5.8 kg and her oedema is mild (+). Enter instructions for Rositha's feeding plan for Day 4 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE: _____ feeds of _____ml

Case 3 – Rositha, continued

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Rositha Hospital ID number: 453 Admission weight (kg): 6.4 kg Today's weight (kg): 6.1 kg

DATE: 8/02/01 (Day 3) **TYPE OF FEED:** F-75 **GIVE:** 12 **feeds of** 55 **ml**

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	55	0	0	55		
10:00	55	30	25	30		Yes (lots)
12:00	55	10	45	10		
14:00	55	10	45	10		
16:00	55	0	55			
18:00	55	0	55			Yes (small)
20:00	55	0	55			
22:00	55	0	55			Yes (small)
24:00	55	0	55			
2:00	55	0	55			
4:00	55	0	55			
6:00	55	0	55			
		Column totals	c. 555 ml	d. 105 ml	e. 0	Total yes: 3

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = 660 ml

Case 4 – Suraiya

When Suraiya was admitted to the severe malnutrition ward, she weighed 5.7 kg and had mild oedema (+, in both feet only). Since she had only mild oedema, the doctor used the regular F-75 feeding table. Suraiya's weight of 5.7 kg was between the weights listed on the table, so she was given the next lower amount of F-75 (that is, 60 ml every 2 hours, the amount for a 5.6 kg child).

Suraiya had mouth sores and refused to eat, so an NG tube was inserted for feeding. She began treatment for *Candida*. On Day 2 she began taking F-75 by mouth and had several good feeds orally. On the morning of Day 3 the NG tube was removed. Suraiya's 24-Hour Food Intake Chart for Day 3 is on the opposite page.

4a. According to Suraiya's 24-Hour Food Intake Chart for Day 3, when did she begin to refuse most of her feeds?

4b. What should the night staff have done in response to Suraiya's refusal to feed? When should they have done this?

4c. What should be done for Suraiya on the morning of Day 4?

4d. Enter instructions for Suraiya's feeding plan for Day 4 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE: _____ feeds of _____ml

Case 4 – Suraiya, continued

24-HOUR FOOD INTAKE CHART
Complete one chart for every 24-hour period.

Name: Suraiya Hospital ID number: 1103 Admission weight (kg): 5.7 kg Today's weight (kg): 5.6 kg

DATE: 14/3/01 (Day 3) **TYPE OF FEED:** F-75 **GIVE:** 12 **feeds of** 60 **ml**

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	60	10	50			
10:00	60	10	50			
12:00	60	10	50			
14:00	60	10	50			
16:00	60	20	40			
18:00	60	10	50			
20:00	60	40	20			
22:00	60	30	30			
24:00	60	40	20			
2:00	60	60	0			
4:00	60	60	0			
6:00	60	60	0			
Column totals			c. 360 ml	d. 0	d. 0	Total yes: 0

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = 360 ml

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

3.0 Feed the child in transition

It may take up to 7 days, or even longer, for the child to stabilize on F-75. When the child has stabilized, one can begin to offer F-100, the higher calorie, higher protein "catch-up" feed intended to rebuild wasted tissues. Eventually the child will be offered F-100 freely. However, it is extremely important to make the transition to free feeding on F-100 gradually and monitor carefully. If transition is too rapid, heart failure may occur.

3.1 Recognize readiness for transition

Look for the following signs of readiness usually after 2 – 7 days:

- Return of appetite (easily finishes 4-hourly feeds of F-75)
- Reduced oedema or minimal oedema

The child may also smile at this stage.

3.2 Begin giving F-100 slowly and gradually

Transition takes 3 days, during which F-100 should be given according to the following schedule:

First 48 hours (2 days): Give F-100 every 4 hours in the same amount as you last gave F-75. Do not increase this amount for 2 days.

Then, on the 3rd day: Increase each feed by 10 ml as long as the child is finishing feeds. If the child does not finish a feed, offer the same amount at the next feed; then if feed finished, increase by 10 ml. Continue increasing the amount until some food is left after most feeds (usually when amount reaches about 30 ml/kg per feed).

If the child is breastfeeding, encourage the mother to breastfeed between feeds of F-100.

Example of feeding schedule during transition

You may remember Delroy from the last exercise. On Day 1 Delroy's rehydrated weight was 3.8 kg, and he started on 40 ml of F-75 every 2 hours. Delroy continued to feed well over the next two days. On Day 2 he took 3-hourly feeds of 60 ml F-75. On Day 3 he took 4-hourly feeds of 85 ml F-75. He also smiled at his mother and the nurses.

On Day 3 Delroy easily finished all of his 4-hourly feeds. Thus, on Day 4 Delroy is ready for transition.

Delroy's feeding schedule during transition will be as follows:

Day 4: 85 ml of F-100 every 4 hours (same amount and frequency as he previously took F-75).

Day 5: 85 ml of F-100 every 4 hours (same as Day 4).

Day 6: Continue 4-hourly feeds, increasing amount by 10 ml each time: 95 ml, 105 ml, 115 ml, etc. If Delroy does not finish a feed, give the same amount at the next feed. Continue increasing the amount until some food is left after most feeds.

3.3 Monitor the child carefully during transition

Every 4 hours check the child's respiratory and pulse rate. If F-100 is introduced carefully and gradually, problems are unlikely; however, increasing respiratory rate and pulse rate may signal heart failure. Call a physician for help. (More information on danger signs and monitoring is given in *Daily Care*.)

3.4 Record intake/output; plan child's feeds for next 24 hours

Record the amount of F-100 offered at each feed, and the child's intake and output (vomiting or diarrhoea) on the 24-Hour Food Intake Chart. Also enter the total amount taken during the day on the CCP.

Enter the feeding plan for the next day on a new 24-Hour Food Intake Chart. On the third day, when feeds should increase by 10 ml (as long as the child is taking all that is offered), mark an arrow by the starting amount per feed. For example, 95 ml ↑:

DATE: 9/12/01	TYPE OF FEED: F-100	GIVE: 6 feeds of 95↑

EXERCISE C

Case 1 – Delroy

The following CCP excerpt summarizes Delroy's progress through the first two days of transition (Days 4 and 5). On Day 4 and Day 5 he took all of every feed of 85 ml F-100. The column for Day 6 shows what the nurse wrote on the CCP in the morning of Delroy's third day of transition.

	Week 1							Week 2	
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9
Date	*4/12*	*5/12*	*6/12*	*7/12*	*8/12*	*9/12*			
Daily weight (kg)	*3.8*	*3.8*	*3.8*	*3.85*	*3.9*	*4.0*			
Weight gain (g/kg)	*Calculate daily after on F-100.*				*13**	*25**			
Oedema 0 + ++ +++	*0*	*0*	*0*	*0*	*0*	*0*			
Diarrhoea/vomit 0 D V	*D*	*D*	*0*	*0*	*0*				
FEED PLAN: Type feed	*F-75*	*F-75*	*F-75*	*F-100*	*F-100*	*F-100*			
# feeds daily	*10*	*8*	*6*	*6*	*6*	*6*			
Total volume taken (ml)	*400*	*460*	*510*	*510*	*510*				

**These figures show Delroy's weight gain in grams per kilogram body weight. You will learn how to calculate and interpret this gain later, in the module titled "Monitoring and Problem Solving."*

On Day 6 Delroy was offered increasing amounts of F-100. His 24-Hour Food Intake Chart for Day 6, through the 24:00 feed, is shown on the next page. Study Delroy's chart and answer the questions on the facing page.

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: Delroy Hospital ID number: 107 Admission weight (kg): 3.8 kg Today's weight (kg): 4.0 kg

DATE: 9/12/01 (Day 6) **TYPE OF FEED:** F-100 **GIVE:** 6 **feeds of** 95↑**ml**

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	95	0	95			
12:00	105	10	95			
16:00	105	0	105			
20:00	115	10	105			
24:00	115	0	115			
4:00						
		Column totals	c.	d.	e.	Total yes:

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

Case 1 – Delroy, continued

1a. How much F-100 should Delroy be offered at the 4:00 a.m. feed? Enter this amount in the "Amount Offered" column of Delroy's chart.

1b. Delroy leaves 10 ml of the F-100 offered at 4:00 a.m. He has had no vomiting or diarrhoea since the last feed. Complete the rest of Delroy's 24-Hour Food Intake Chart for Day 6, including the totals.

1c. Complete the rest of the column for Day 6 on the excerpt of Delroy's CCP on page 29.

Case 2 – Pedro

You may remember that Pedro was a reluctant eater on Days 1 and 2. On Day 3 his appetite increased, and he took eight 3-hourly feeds of 80 ml F-75. He took all of the F-75 offered at each feed. On Day 4 Pedro took six 4-hourly feeds of 110 ml F-75. He ate greedily and still wanted more at the end of each feed.

On Day 5 Pedro began transition. He eagerly took six 4-hourly feeds of 110 ml F-100. Pedro's mother says that he wants more at each feed. She asks if she can give Pedro more.

2a. Should Pedro be given larger feeds of F-100 on Day 6?

2b. What should the nurse explain to Pedro's mother?

Case 3 – Rositha

You may remember that Rositha was admitted with severe oedema and had to be fed by NG tube for several days because she refused to eat.

By Day 6 Rositha was feeding much better, and she had lost most of her oedema. Her weight had decreased from 6.4 kg to 5.4 kg because of loss of oedema fluid. Since Rositha's starting amount of F-75 was taken from the chart for severely oedematous children, the staff continues to use that chart and her starting weight to determine the amount of F-75 to give. On Day 6 Rositha was given six 4-hourly feeds of 105 ml. She eagerly took all of the F-75 offered.

On Day 7 Rositha's oedema appears to be gone and she weighs 5.2 kg.

3a. Is Rositha ready for transition? Why or why not?

3b. Enter instructions for Rositha's feeding plan for Day 7 on the following excerpt from the 24-Hour Food Intake Chart:

DATE: *12/02/01 (Day 7)*	TYPE OF FEED:	GIVE: _____ feeds of _____ml

3c. Rositha takes her feeds on Day 7 well and shows no danger signs. Enter instructions for Rositha's feeding plan for Day 8:

DATE: *12/03/01 (Day 8)*	TYPE OF FEED:	GIVE: _____ feeds of _____ml

3d. Rositha takes her feeds on Day 8 well and shows no danger signs. Enter instructions for Rositha's feeding plan for Day 9:

DATE: *12/04/01 (Day 9)*	TYPE OF FEED:	GIVE: _____ feeds of _____ml

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

4.0 Feed freely with F-100

Transition takes 3 days. After transition, the child is in the "rehabilitation" phase and can feed freely on F-100 to an upper limit of 220 kcal/kg/day. (This is equal to 220 ml/kg/day.) Most children will consume at least 150 kcal/kg/day; any amount less than this indicates that the child is not being fed freely or is unwell. You have an *F-100 Reference Card* that shows the 150 – 220 kcal/kg/day range of intakes suitable for children of different weights up to 10 kg. A copy of this *F-100 Reference Card* is in Annex A.

4.1 Encourage the child to eat freely at each feed

During the rehabilitation phase, encourage the child to eat as much as he wants at each feed, within the range shown on the *F-100 Reference Card*. Continue to feed every 4 hours within this range. Sit with the child and actively encourage eating. Never leave the child alone to feed.

If the child's weight is between the weights given on the *F-100 Reference Card*, use the range for the next lower weight.

If you need to calculate the acceptable range yourself (for example, if the child weighs more than 10 kg), multiply the child's weight by 150 ml (minimum) and 220 ml (maximum); then divide each result by 6 (for 6 feeds per day). An easier method may be to add together the feed volumes for an appropriate combination of children's weights from the card. For example, if a child weighs 13.2 kg, add the volumes shown for a 10.0 kg child plus a 3.2 kg child.

Examples

Maria weighs 6.2 kg. According to the *F-100 Reference Card*, her feeds of F-100 may be in the range of 155 – 230 ml.

Lo weighs 4.5 kg. Using the range for the next lower weight, 4.4 kg, Lo's feeds may be in the range of 110 – 160 ml.

Delia weighs 12 kg. Calculate the acceptable range of volumes of F-100 for her as follows:

Minimum: 12 kg × 150 ml = 1800 ml per day
1800 ml ÷ 6 = 300 ml per feed

Maximum: 12 kg × 220 ml = 2640 ml per day
2640 ml ÷ 6 = 440 ml per feed

Alternative method for Delia – Add volumes for a 10.0 kg child plus a 2.0 kg child:

Minimum: 250 ml + 50 ml = 300 ml per feed
Maximum: 365 ml + 75 ml = 440 ml per feed

Due to rounding of the figures on the *F-100 Reference Card*, the volumes may be slightly different using this alternative method.

4.2 Record intake/output; determine if intake is acceptable

Record each feed on the 24-Hour Food Intake Chart. To determine if daily intake is acceptable, compare the volume taken to the range given on the table on the *F-100 Reference Card*. If the child is not taking the minimum amount, there may be a problem such as an infection, or the child may need more encouragement to eat. In general, if the child is gaining weight rapidly, he is doing well. If the child has diarrhoea but is still gaining weight, there is no need for concern, and no change is needed in the diet.

By week 3 or 4, if the child is doing well, there is no need to continue using the 24-Hour Food Intake Chart. If the child is gaining weight rapidly, you may assume that he is doing well. Monitoring for danger signs is no longer needed.

4.3 Adjust feeding plan as necessary

During rehabilitation, the child is expected to gain weight rapidly, and the amount of F-100 given should be increased as the child gains. The more energy that is packed in, the faster the child will grow. To plan feeds for the next day:

- Use the child's **current** weight to determine the appropriate range of F-100 each day.
- Choose a starting amount within the range. Base the starting amount on the amount taken in feeds during the previous day. If the child finished most feeds, offer a bit more. If he did not finish most feeds, offer the same amount as the day before.
- Do not exceed the maximum in the range for the child's current weight.

If the amount of F-100 offered may be increased during the day, write a note to this effect on the 24-Hour Food Intake Chart. For example, *"Increase by 10 ml until some left – not to exceed 175 ml"*. Or use an arrow to show that an increase is permitted, for example, "*155 ↑, not to exceed 175*". If the child is starting the day with the maximum amount allowed, write on the chart,"*Do not increase"*.

EXERCISE D

Case 1 – Delroy

You may remember that Delroy began transition on Day 4. On Days 4 and 5 he was given 95 ml F-100 per feed. On Day 6 he increased to 125 ml by the last feed of the day. On Day 7 Delroy began free feeding on F-100. Delroy's 24-Hour Food Intake Chart for Day 7 is on the following page.

1a. What volume of F-100 was Delroy offered at his last feed on Day 7?

1b. On Day 8 Delroy's weight is 4.2 kg. What is the range of volumes of F-100 that is appropriate for Delroy for each 4-hourly feed?

1c. What should be the starting amount of F-100 given on Day 8?

1d. What instructions should be written on the 24-Hour Food Intake Chart concerning the amount of F-100 to offer at subsequent feeds on Day 8?

1e. On Day 8 Delroy reached the maximum volume per feed and still wanted more. The nurse gave him no more than the maximum allowed. On Day 9 Delroy's weight is up to 4.4 kg. What should be the starting amount of F-100 on Day 9? Should this amount be increased during the day?

Case 1 – Delroy, continued

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: *Delroy* Hospital ID number: *107* Admission weight (kg): *3.8 kg* Today's weight (kg): *4.1 kg*

DATE: *10/12/01 Day 7* **TYPE OF FEED:** *F-100* **GIVE:** *6* **feeds of** *125* ↑ **ml** *Do not exceed 145 ml*

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	*125*	*10*	*115*			
12:00	*125*	*0*	*125*			
16:00	*135*	*10*	*125*			
20:00	*135*	*10*	*125*			
24:00	*135*	*15*	*120*			
4:00	*135*	*5*	*130*			
Column totals			c. *740 ml*	d. *0*	e. *0*	Total yes: *0*

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = *740* ml

Case 2 – Pedro

Day 7 was Pedro's third day of transition. He started leaving food at 130 ml of F-100. On Day 8 he began feeding at 130 ml and gradually increased to 160 ml, when he started leaving food again. On Day 9 his weight was 5.05 kg. His 24-Hour Food Intake Chart for Day 9 is opposite.

2a. What is an appropriate range of daily volume of F-100 for Pedro on Day 9? _____ – _____ ml
Did Pedro take a total volume of F-100 in this range?

Following is an excerpt from Pedro's CCP. On the fourth row Pedro's weight gain per day is shown in grams per kilogram of his body weight. A weight gain of 10 or more g/kg/day is considered good. A gain of 5 up to 10 g/kg/day is considered moderate. Less than 5 g/kg/day is poor. You will learn to calculate daily weight gain and to keep a graph of weights in later modules.

	Week 1							Week 2		
DAYS IN HOSPITAL	1	2	3	4	5	6	7	8	9	10
Date	*5/12*	*6/12*	*7/12*	*8/12*	*9/12*	*10/12*	*11/12*	*12/12*	*13/12*	*14/12*
Daily weight	*4.8*	*4.75*	*4.75*	*4.8*	*4.8*	*4.85*	*4.9*	*5.0*	*5.05*	*5.15*
Weight gain (g/kg)	*Calculate daily after on F-100.*				*0*	*10.4*	*10.3*	*20.4*	*10*	*9.9*
Oedema 0 + ++ +++	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Diarrhoea/vomit 0 D V	*0*	*D V*	*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*
# feeds daily	*12*	*8*	*8*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Total volume taken	*600*	*570*	*640*	*660*	*660*	*660*	*740*	*850*	*900*	

2b. Look at Pedro's 24-Hour Food Intake Chart (opposite). Notice that Pedro ate the same amount per feed on Day 9 without increasing. Is there any apparent reason for concern? Why or why not?

2c. Enter instructions for Pedro's feeding plan for Day 10 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE: _____ feeds of _____ml

Case 2 – Pedro, continued

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: *Pedro* Hospital ID number: *236* Admission weight (kg): *4.8 kg* Today's weight (kg): *5.05 kg*

DATE: *13/12/01 Day 9* **TYPE OF FEED:** *F-100* **GIVE:** *6* **feeds of** *160↑* **ml** *Do not exceed 185 ml*

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	*160*	*10*	*150*			
12:00	*160*	*10*	*150*			
16:00	*160*	*10*	*150*			
20:00	*160*	*10*	*150*			
24:00	*160*	*10*	*150*			
4:00	*160*	*10*	*150*			
		Column totals	c. *900 ml*	d. *0*	e. *0*	Total yes: *0*

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = *900* ml

Case 3 – Rositha

Day 9 was Rositha's third day of transition. On Day 9 she started at 115 ml feeds of F-100. She took all of her feeds well and progressed to 145 ml by the 4:00 a.m. feed.

On Day 10 Rositha weighed 5.2 kg and began feeding freely on F-100. Her 24-Hour Food Intake Chart for Day 10 is on the opposite page. Calculate the column totals and the total volume taken over 24 hours.

3a. What was the total volume of F-100 taken by Rositha over 24 hours on Day 10?

3b. What is the appropriate daily range of volumes for Rositha's weight? Was the amount taken within the appropriate range?

3c. Looking back at Rositha's Monitoring Record for Day 10, the head nurse noticed that Rositha's temperature had increased just before the 16:00 feed. What does this suggest about the cause of Rositha's eating less?

3d. Which of the following should the head nurse do? (Tick)

____ Alert the doctor that Rositha has a problem and needs to be checked carefully

____ Plan feeding for Day 11 to start at 145 ml F-100 again

____ Both of the above

Case 3 – Rositha, continued

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name: *Rositha* Hospital ID number: *453* Admission weight (kg): *6.4 kg* Today's weight: *5.2 kg*

DATE: *15/02/01 Day 10* **TYPE OF FEED:** *F-100* **GIVE:** *6* **feeds of** *145↑* **ml** *Do not exceed 190 ml*

Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
8:00	*145*	*10*	*135*			
12:00	*145*	*45*	*100*			
16:00	*145*	*50*	*95*			
20:00	*145*	*60*	*85*			
24:00	*145*	*70*	*75*			
4:00	*145*	*65*	*80*			
		Column totals	c.	d.	e.	Total yes:

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

When vou have finished this exercise. discuss vour answers with a facilitator.

5.0 Plan feeding for the ward

Until this point, this module has focused on planning feeding for the individual child. It is also important to plan feeding for the ward as a whole, so that the staff know how much food to prepare, how much food to put in cups at each feed, etc.

5.1 Determine a schedule for feeding and related activities in the ward

The ward schedule should include times for the following activities:

- Preparing feeds (as often as necessary to ensure freshness)
- Reviewing patient charts and planning feeding for the day
- Feeding according to 2-hourly, 3-hourly, and 4-hourly plans
- Weighing
- Bathing
- Shift changes

Once these activities are scheduled, you will see where time for organized play and educational activities will most conveniently fit in.

In general, monitoring activities (such as measuring temperature and pulse and respirations) will take place every four hours on an individual basis, before a child feeds. There is no need to include these activities on the written schedule for the ward. Individual treatments and drugs will also be given on an individual basis.

🕘 *Time for preparing feeds*

Based on storage capabilities, the length of time feed will stay fresh, and availability of kitchen staff, decide whether feeds should be prepared every 12 hours or every 24 hours. 12 hours is most common. If refrigeration is poor or if there are very many children, it may be necessary to make feeds more frequently, even for every feed. If well-refrigerated, feeds will stay fresh for 24 hours. Food must be discarded after 24 hours.

🕘 *Time for review and planning*

Select a time of day to review each child's past 24-Hour Food Intake Chart; plan feeding for each child (if this has not already been done during physician rounds); and compile feeding plans for each child onto a feeding chart for the entire ward. An example of a completed Daily Ward Feed Chart is shown on page 51. A blank Daily Ward Feed Chart is provided in Annex C. This chart is used in the kitchen so that staff know how much F-75 and F-100 to prepare.

Feeding times

Select a time of day that each "feeding day (24 hours)" will start. This is usually in the morning after totals have been done from the previous day, and a Daily Ward Feed Chart has been prepared for the new day. The time selected should be after staff have arrived and had time to prepare the food.

Plan times for 2-hourly, 3-hourly, and 4-hourly feeds. At almost every hour, some children will have feeds. Ensure that no feeds occur at times of shift changes. For example, if shift changes are on the hour, plan for feeds to occur on the half-hour.

Keep in mind that a few children, for example, those with hypoglycaemia or continued vomiting, may be on a special half-hourly or hourly feeding schedule. Those children will need special attention to ensure the more frequent feeds are provided outside the normal schedule.

Weighing and bathing

Daily weighing will need to occur at about the same time each day, preferably one hour before or after a feed.

Since the children are undressed for weighing, this is also a good time for bathing. Generally children on 2-hourly feeding schedules are new to the ward and are likely to be too ill to be bathed. Children on 3-hourly and 4-hourly schedules may be bathed when they are weighed if this is convenient.

Shift changes

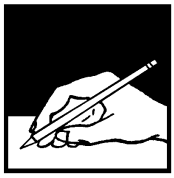
Shift changes may already be fixed for your hospital, and you may need to work around them in planning your schedule. Often there are three shifts per day, with the night shift being the longest. Keep in mind that no feeding should be scheduled during a shift change. It is best for shifts to overlap slightly so that instructions may be communicated from one shift to the next.

Example of schedule

At City Hospital there is good refrigeration. There are usually 10 –15 children in the ward. There is adequate staff to prepare feeds twice daily, so it is decided to prepare feeds every 12 hours.

There are three nursing shifts per day. Each shift overlaps with the previous one by 30 minutes, so there is time to communicate instructions. The "feeding day" starts at 10:00 a.m. after the senior nurse has had time to review charts from the day before and plan for the day. Beginning with the morning shift change, the schedule for the ward is as follows:

TIME	Activities by Feeding Schedule			Other Ward Activities/Comments
	2-hourly	3-hourly	4-hourly	
Shift change 6:30 – 7:00; instructions given				
7:00	Weigh	Feed	Weigh, bathe	
8:00	Feed	Weigh, bathe		Senior Nurse reviews each child's past 24-Hour Food Intake Chart and weight; plans feeding for the day; completes Daily Ward Feed Chart
9:00				Prepare feeds for next 12 hours; distribute individual charts to beds
10:00	Feed	Feed	Feed	Start of new "feeding day"
11:00				Organized play, parent education
12:00	Feed			
13:00		Feed		
Shift change 13:30 – 14:00; instructions given				
14:00	Feed		Feed	
15:00				Organized play, parent education
16:00	Feed	Feed		
17:00				Organized play, parent education
18:00	Feed		Feed	
19:00		Feed		
20:00	Feed			
Shift change 20:30 to 21:00; instructions given to night staff				
21:00				Prepare feeds for next 12 hours
22:00	Feed	Feed	Feed	
23:00				
24:00	Feed			
1:00		Feed		
2:00	Feed		Feed	
3:00				
4:00	Feed	Feed		
5:00				
6:00	Feed		Feed	



EXERCISE E

In this exercise you will draft a schedule for your own ward, using your own information on shift changes, frequency of making feeds, etc.

If there are other staff members from your hospital attending this training course, it is suggested that you work together on this exercise.

Draft your ideas on a blank piece of paper first. Then use the blank table on the next page (or you may develop your own format). Be sure to include times for:

- Reviewing charts and planning feeding for the day
- Preparing feeds (as often as necessary)
- Feeding
- Weighing
- Bathing
- Shift changes

Consider the following questions and be prepared to discuss them:

- Is there a need to adjust shifts, kitchen hours, or other aspects of your hospital's schedule to accommodate feeds?

- When are there times in the schedule to include opportunities for play or educating parents about feeding their children?

When you have finished making a schedule for your ward, tell a facilitator that you are ready for a group discussion.

Schedule format for use in Exercise E

TIME	Activities by Feeding Schedule			Other Ward Activities/Comments
	2-hourly	3-hourly	4-hourly	

5.2 Prepare a Daily Ward Feed Chart to use in preparing feeds

An example of a Daily Ward Feed Chart is on the next page. To prepare a Daily Ward Feed Chart:

- Enter the name of each child in the ward in the first column.

- Note that children on F-75 will have information recorded in the left-hand section of the chart, and children on F-100 will have information recorded in the right-hand section. Looking at each child's individual 24-Hour Food Intake Chart for the coming day, transfer:

  - the number of feeds planned for the child for the day

  - the amount of F-75 or F-100 needed per feed. (*Note*: if a child may be increasing the size of feeds during the day, enter the amount of the largest feed that you expect him to take. To ensure that there is enough food, it is better to estimate high.)

- Determine the total amount of F-75 and F-100 needed for each child by multiplying the number of feeds by the amount per feed.

- Add the individual totals to determine the total amount of F-75 and F-100 needed for the day for the ward.

- Divide the day's totals by the number of times that food is prepared in a day. For example, if food is prepared every 12 hours, or twice daily, divide the day's totals by 2. If food is prepared every 8 hours, divide by 3, etc. The result is the amount needed until the next time that food is prepared.

- Round up the amount needed to the nearest litre (since the feeds are prepared in litre batches).

- Plan to prepare some extra feed. The extra amount will be used for new admissions, etc. Enter the amount to prepare in the appropriate space on the chart.

Example

DAILY WARD FEED CHART

DATE: *14/03/01* WARD: *Severe Malnutrition*

Name of Child	F-75			F-100		
	Number feeds	Amount/ feed (ml)	Total (ml)	Number feeds	Amount/ feed (ml)	Total (ml)
Mercedes	*12*	*55*	*660*			
Elian				*6*	*250*	*1500*
Flora				*6*	*300*	*1800*
Lela				*6*	*180*	*1080*
Manuel	*8*	*115*	*920*			
Jose				*6*	*200*	*1200*
Gabriela	*8*	*100*	*800*			
Hugo	*6*	*200*	*1200*			
Marina				*6*	*280*	*1680*
Cristina	*12*	*90*	*1080*			
Cesar				*6*	*160*	*960*
Jimena				*6*	*200*	*1200*
Jeronimo				*6*	*150*	*900*
F-75 (total ml) needed for 24 hours			*4660*	*F-100 (total ml) needed for 24 hrs*		*10 320*
Amount needed for *12* *hours**			*2330*	*Amount needed for* *12* *hours**		*5160*
Amount to prepare (round up to whole litre)			*3 litres*	*Amount to prepare (round up to whole litre)*		*6 litres*

*Divide daily amount by the number of times food is prepared each day. For example, if feeds are prepared every 12 hours, divide daily amount by 2.

EXERCISE F

In this exercise you will finish completing a Daily Ward Feed Chart and determine how much F-75 and F-100 to prepare for the ward. Use the partially completed Daily Ward Feed Chart on the next page in this exercise.

1. Prakesh is the tenth child in the ward. It is his fourth day in the ward and he is still on F-75. His feeding plan for the day is below. Add Prakesh's feeding plan to the Daily Ward Feed Chart.

DATE: *17/5/01*	TYPE OF FEED: *F-75*	GIVE: *6* feeds of *130* ml

2. Vera is the eleventh child in the ward. She is starting her second day of transition, so her planned amount of F-100 should not be increased during the day. Vera's feeding plan for the day is below. Add her feeding plan to the Daily Ward Feed Chart.

DATE: *17/5/01*	TYPE OF FEED: *F-100*	GIVE: *6* feeds of *160* ml

3. Sami is the last child in the ward. Sami's feeding plan is below. Sami ate eagerly yesterday, and he is likely to reach his maximum amount today. Add Sami's feeding plan to the Daily Ward Feed Chart.

DATE: *17/5/01*	TYPE OF FEED: *F-100*	GIVE: *6* feeds of *170↑* ml *Do not exceed 190 ml.*

4. Feeds are prepared every 12 hours at this hospital. Complete the bottom part of the Daily Ward Feed Chart to determine how much to prepare for 12 hours.

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

Use in Exercise F

DAILY WARD FEED CHART

DATE: *17/05/01* WARD: *Severe Malnutrition*

Name of Child	F-75			F-100		
	Number feeds	Amount/ feed (ml)	Total (ml)	Number feeds	Amount/ feed (ml)	Total (ml)
Meena				*6*	*250*	*1500*
Tara	*12*	*50*	*600*			
Abul				*6*	*180*	*1080*
Maya				*6*	*160*	*960*
Nisha	*12*	*65*	*780*			
Kapur				*6*	*200*	*1200*
Haruu				*6*	*220*	*1320*
Bahadur	*8*	*115*	*920*			
Lama				*6*	*200*	*1200*
F-75 (total ml) needed for 24 hours				*F-100 (total ml) needed for 24 hrs*		
*Amount needed for ____ hours**				*Amount needed for ____ hours**		
Amount to prepare (round up to whole litre)				*Amount to prepare (round up to whole litre)*		

*Divide daily amount by the number of times food is prepared each day. For example, if feeds are prepared every 12 hours, divide daily amount by 2.

5.3 Plan staff assignments related to feeding children

The major tasks involved in feeding are:

- preparing mineral mix (done by pharmacy)
- preparing F-75, F-100, and ReSoMal
- measuring out feeds in amounts prescribed for each child
- feeding children
- recording feeds (and vomiting and diarrhoea) on intake chart
- planning feeding schedule for an individual child for the next day
- preparing the Daily Ward Feed Chart

Each of these tasks is extremely important. Each task requires different skills. For example, preparing feeds requires the ability to follow a recipe and measure carefully. Feeding children requires patience and the ability to encourage a child in a loving way.

Appropriate staff, with the necessary skills or the ability to learn them, must be assigned to each of these tasks.

5.4 Prepare staff to do assigned feeding tasks

If staff do not know how to do the tasks that you plan to assign them, you will need to provide some training. Training need not be lengthy or formal, but may be done through staff meetings or on the job. Good training includes information, examples, and practice.

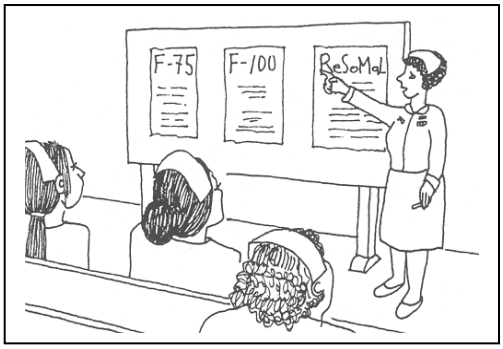
Example

Think about a time when you learned a new skill, such as riding a bicycle, tying your shoe, or cooking rice. If you had a good teacher, that person probably:

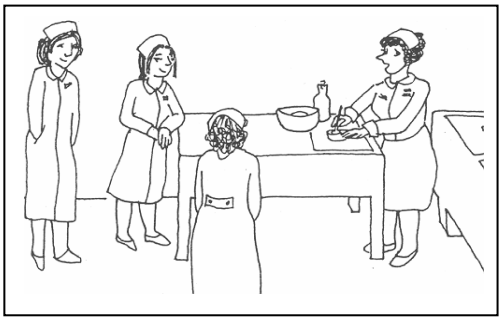
- first **told** you how (**information**)
- then **showed** you how (**example**); and
- then helped you **practise** until you could do it yourself.

These simple components of good teaching can be used in training staff to do feeding tasks or other tasks on the ward.

Information: Staff must be told (and preferably informed in a written job description) what tasks are expected. They must also be given instructions about how to do the tasks. Instructions may be in the form of a "job-aid", such as a poster on the wall with recipes for F-75, F-100, and ReSoMal. The *F-75 and F-100 Reference Cards* used in this course are job-aids. Information may also be given orally, for example, in a staff meeting about how to complete patient records.



Examples: Staff must be shown how to do the tasks. For example, they may watch a demonstration of preparing feeds or feeding a very weak child. They may look at a correctly completed 24-Hour Food Intake Chart.



Practice: Practice is the most important element of training. In order to learn a task, staff must do the task themselves, at first receiving careful supervision and feedback as needed to improve performance. For example, staff must actually prepare feeds with supervision until they can do it correctly. They must also practise reading a Daily Ward Feed Chart and measuring out appropriate amounts of feed. Staff who will feed children need to practise holding them and encouraging them to eat.

Of course, training will not solve every problem in the ward. For example, staff may not want to do a task because it is unpleasant, or they may be unable to do a task because they lack the time or equipment. Training will not solve these problems, and other solutions will need to be considered. Training is appropriate when staff:

- do not know **what** to do; or
- do not know **how** to do a task.

EXERCISE G

In this exercise you will discuss various ways in which information, examples, and practice can be provided for feeding-related tasks.

First answer the questions below. Be prepared to discuss your answers with the group.

1. List one feeding-related task that staff in your hospital do not know how to do correctly.

2. Which staff members are (or will be) responsible for this task? Do they know they are responsible for it? If not, how can you inform them of their responsibility?

3. In training staff to do this task, how could you provide **information** cheaply, quickly, and realistically?

4. How could you provide **examples** cheaply, quickly, and realistically?

5. How could you provide **practice** cheaply, quickly, and realistically?

6. If you were to train staff to do this task, would there be any remaining problems interfering with doing the task? If so, what problems, and how could they be overcome?

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

ANSWERS TO SHORT ANSWER EXERCISE

Answers, page 9

Child 1: 110 ml F-75

Child 2: 90 ml F-75 *(When the weight is not on the feeding table, use the next lower weight. Use the regular feeding table for a child with mild oedema.)*

Child 3: 45 ml F-75 *(Use feeding table for children with severe oedema.)*

Child 4: 15 ml F-75 every half hour *(Divide 2-hourly amount for severely oedematous child by 4.)*

Child 5: 210 ml F-75 *(Use regular table since child has only moderate oedema.)*

Answers, page 15

1. Matteu's feeding day began at 8:00 a.m. and ended at 6:00 a.m. on the next morning.

2. 12 times

3. Matteu was offered 35 ml each time.

4. No, 20 ml is only about 60% of 35 ml.

5. No

6. He refused most of the feed and vomited the small amount that he took.

7. He was fed by NG tube. The staff realized that he had not taken enough by mouth for 3 successive feeds. (*Note*: They could have started the NG after 2 poor feeds.)

8. He was fed as much as he would take orally; then he was given the rest by NG tube.

9. Yes, he took about 85%.

10. 345 ml (200 ml taken orally + 155 ml taken by NG – 10 ml vomited)

11. No, the NG tube should not be removed. Although he took almost all of the last two feeds by mouth, he is still leaving a little bit. When he takes two consecutive feeds completely by mouth, the tube should be removed

ANNEX A

F-75 Reference Card – Volume of F-75 to give for children of different weights

See reverse for adjusted amounts for children with severe (+++) oedema.

Weight of child (kg)	Volume of F-75 per feed (ml)[a]			Daily total (130 ml/kg)	80% of daily total[a] (minimum)
	Every 2 hours[b] (12 feeds)	Every 3 hours[c] (8 feeds)	Every 4 hours (6 feeds)		
2.0	20	30	45	260	210
2.2	25	35	50	286	230
2.4	25	40	55	312	250
2.6	30	45	55	338	265
2.8	30	45	60	364	290
3.0	35	50	65	390	310
3.2	35	55	70	416	335
3.4	35	55	75	442	355
3.6	40	60	80	468	375
3.8	40	60	85	494	395
4.0	45	65	90	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	55	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	120	702	560
5.6	60	90	125	728	580
5.8	65	95	130	754	605
6.0	65	100	130	780	625
6.2	70	100	135	806	645
6.4	70	105	140	832	665
6.6	75	110	145	858	685
6.8	75	110	150	884	705
7.0	75	115	155	910	730
7.2	80	120	160	936	750
7.4	80	120	160	962	770
7.6	85	125	165	988	790
7.8	85	130	170	1014	810
8.0	90	130	175	1040	830
8.2	90	135	180	1066	855
8.4	90	140	185	1092	875
8.6	95	140	190	1118	895
8.8	95	145	195	1144	915
9.0	100	145	200	1170	935
9.2	100	150	200	1196	960
9.4	105	155	205	1222	980
9.6	105	155	210	1248	1000
9.8	110	160	215	1274	1020
10.0	110	160	220	1300	1040

[a] Volumes in these columns are rounded to the nearest 5 ml.

[b] Feed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5 watery stools per day), and finishing most feeds, change to 3-hourly feeds.

[c] After a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

Volume of F-75 for Children with Severe (+++) Oedema

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml)[a]			Daily total (100 ml/kg)	80% of daily total[a] (minimum)
	Every 2 hours[b] (12 feeds)	Every 3 hours[c] (8 feeds)	Every 4 hours (6 feeds)		
3.0	25	40	50	300	240
3.2	25	40	55	320	255
3.4	30	45	60	340	270
3.6	30	45	60	360	290
3.8	30	50	65	380	305
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1000	800
10.2	85	130	170	1020	815
10.4	85	130	175	1040	830
10.6	90	135	175	1060	850
10.8	90	135	180	1080	865
11.0	90	140	185	1100	880
11.2	95	140	185	1120	895
11.4	95	145	190	1140	910
11.6	95	145	195	1160	930
11.8	100	150	195	1180	945
12.0	100	150	200	1200	960

[a]Volumes in these columns are rounded to the nearest 5 ml.
[b] Feed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5 watery stools per day), and finishing most feeds, change to 3-hourly feeds.
[c]After a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

F-100 Reference Card – Range of Volumes for Free-Feeding with F-100

Weight of Child (kg)	Range of volumes per 4-hourly feed of F-100 (6 feeds daily)		Range of daily volumes of F-100	
	Minimum (ml)	Maximum (ml) [a]	Minimum (150 ml/kg/day)	Maximum (220 ml/kg/day)
2.0	50	75	300	440
2.2	55	80	330	484
2.4	60	90	360	528
2.6	65	95	390	572
2.8	70	105	420	616
3.0	75	110	450	660
3.2	80	115	480	704
3.4	85	125	510	748
3.6	90	130	540	792
3.8	95	140	570	836
4.0	100	145	600	880
4.2	105	155	630	924
4.4	110	160	660	968
4.6	115	170	690	1012
4.8	120	175	720	1056
5.0	125	185	750	1100
5.2	130	190	780	1144
5.4	135	200	810	1188
5.6	140	205	840	1232
5.8	145	215	870	1276
6.0	150	220	900	1320
6.2	155	230	930	1364
6.4	160	235	960	1408
6.6	165	240	990	1452
6.8	170	250	1020	1496
7.0	175	255	1050	1540
7.2	180	265	1080	1588
7.4	185	270	1110	1628
7.6	190	280	1140	1672
7.8	195	285	1170	1716
8.0	200	295	1200	1760
8.2	205	300	1230	1804
8.4	210	310	1260	1848
8.6	215	315	1290	1892
8.8	220	325	1320	1936
9.0	225	330	1350	1980
9.2	230	335	1380	2024
9.4	235	345	1410	2068
9.6	240	350	1440	2112
9.8	245	360	1470	2156
10.0	250	365	1500	2200

[a] Volumes per feed are rounded to the nearest 5 ml.

Danger Signs

Danger Signs Related to Pulse, Respirations, and Temperature ***Alert a physician if these occur.***		
	Danger sign:	**Suggests:**
Pulse and Respirations	Confirmed increase in pulse rate of 25 or more beats per minute, **along with** Confirmed increase in respiratory rate of 5 or more breaths per minute	Infection or Heart failure (possibly from overhydration due to feeding or rehydrating too fast)
Respirations only	Fast breathing: • 50 breaths/minute or more in child 2 months up to 12 months old* • 40 breaths/ minute or more in child 12 months up to 5 years	Pneumonia
Temperature	Any sudden increase or decrease Rectal temperature below 35.5°C (95.9°F)	Infection Hypothermia (possibly due to infection, a missed feed, or child being uncovered)

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

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

Normal ranges of pulse and respiratory rates:

Age	**Normal ranges (per minute):**	
	Pulse	**Respirations**
2 months up to 12 months	80 up to 160	20 up to 60*
12 months up to 60 months (5 years)	80 up to 140	20 up to 40

**Some children age 2 months up to 12 months will normally breathe fast (i.e. 50 – 60 breaths per minute) without having pneumonia. However, unless the child's normal respiratory rate is known to be high, he should be assumed to have either overhydration or pneumonia. Careful evaluation, taking into account prior fluid administration, will help differentiate the two conditions and plan appropriate treatment.*

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period.

Name:_____ Hospital ID number:_____ Admission weight (kg): _____ Today's weight (kg): _____

DATE:		**TYPE OF FEED:**		**GIVE: _____ feeds of _____ml**		
Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
		Column totals	c.	d.	e.	Total yes:

Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = _____ ml

ANNEX B

ANNEX C

DAILY WARD FEED CHART

DATE:_____ **WARD:** _____

Name of Child	F-75			F-100		
	Number feeds	Amount/ feed (ml)	Total (ml)	Number feeds	Amount/ feed (ml)	Total (ml)
F-75 (total ml) needed for 24 hours				*F-100 (total ml) needed for 24 hrs*		
*Amount needed for __ hours**				*Amount needed for __ hours**		
Amount to prepare (round up to whole litre)				*Amount to prepare (round up to whole litre)*		

*Divide daily amount by the number of times food is prepared each day. For example, if feeds are prepared every 12 hours, divide daily amount by 2.

For further information, please contact:

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