INTEGRATED MANAGEMENT OF NEONATAL & CHILDHOOD ILLNESSES (IMNCI)

MODULE 2:

IDENTIFY TREATMENTS

AND

TREAT THE CHILD

World Health Organization

Ministry of National Health Services, Regulation And Coordination, Government of Pakistan

unicef

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IDENTIFY TREATMENT AND TREAT THE CHILD

In the previous module you learned to assess the sick child age 2 months up to 5 years and to classify the child's illness or illnesses. The next step is to identify the necessary treatments. In some instances, the very sick child will need referral to a hospital for additional care. If so, you will begin urgent treatments before the child's departure.

LEARNING OBJECTIVES

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

- Determining if urgent referral is needed
- Identifying treatments needed
- For patients who need urgent referral:
    - identifying the urgent pre-referral treatments
    - explaining the need for referral to the mother
    - writing the referral note.
- Determining appropriate oral drugs and dosages for a sick child
- Giving oral drugs (including antibiotics, antimalarial, paracetamol, salbutamol, vitamin A, iron, Mebendazole and Zinc and multivitamin/mineral supplement), and teaching the mother how and when to give oral drugs at home
- Treating local infections (such as eye infections, ear discharge, mouth ulcers, and teaching the mother how and when to give the treatments at home
- Checking mother's understanding
- Giving drugs administered in the clinic only (intramuscular injections of Ampicillin, Gentamicin and Artimether or quinine, diazepam given rectally, and rapid acting bronchodilator)
- Preventing low blood sugar
- Treating different classifications of dehydration, and teaching the mother about extra fluid to give at home
- Immunizing children

This module will focus on **identifying treatment and treating the child.**

1.0 CHECKING ALL SICK CHILDREN FOR GENERAL DANGER SIGNS

You will begin this module with a case study. This scene should be similar to situations that you see in your clinic. After you read the case study, you will learn how to:

(a) Greet the caregiver and get important information about the child, and

(b) Check for general danger signs.

WHY IS GOOD COMMUNICATION WITH A CAREGIVER IMPORTANT?

Caregivers can be very stressed and emotional when a child is ill. It is important for health workers to communicate concern and care for the child's health, and the family's situation. Good communication helps to reassure the caregiver that her child will receive good care.

When you treat the child's illness later in the visit, you will need to teach and advise the caregiver about caring for her sick child at home. Good communication and trust is essential here. It is important to have good communication with the caregiver from the beginning of the visit.

WHAT ARE GOOD COMMUNICATION SKILLS?

Good communication skills involve the following:

LISTEN – Listen carefully to what the caregiver tells you. This shows you are taking her concerns seriously.

SIMPLIFY WORDS – Use words the caregiver understands. If she does not understand what you ask her, she cannot give the information you need to assess and classify the child correctly.

GIVE HER TIME – Give the caregiver time to answer the questions. She might need time to decide if a sign you are asking about is present.

BE CLEAR – Ask additional questions when the caregiver is not sure about her answer. If she is not sure that a certain symptom or sign is present, ask additional questions. Help her make her answers clearer.

PRAISE – Praise the caregiver for what she is doing right. This will reinforce good practices.

WHAT IS THE IMPORTANT INFORMATION YOU GATHER DURING A GREETING?

When you greet a caregiver, you begin to ask important information about the child. This will help you in your assessment.

Age : The child's age determines which IMNCI charts to use – the sick child or the young

Child's problem

Another important piece of information is why the caregiver is bringing the child to the clinic. By asking the caregiver about the problem, you can make note of the symptoms or health problems that are worrying them. If necessary, you can ask further detail. For example, you might ask how long the symptom has been present, or if it has been getting worse.

You can also ask the caregiver how she has been addressing the health problem thus far. This will give you background about previous care given in the home, community, or other facilities.

Weight, Height and Temperature

Lastly, you will determine the child's weight, height and temperature. Check if this is already recorded on the child's card. If not, weigh the child and measure his temperature later when you assess and classify the child's main symptoms. Do not undress or disturb the child now.

Initial or follow up visit

You also want to know if this is the first visit for this problem, or if this is a follow-up visit. These visits are different, so this is another important piece of information.

WHAT DO YOU DO IF A CHILD SHOWS ONE OR MORE GENERAL DANGER SIGNS?

A child with a general danger sign has a serious problem. Most children with a general danger sign need urgent referral to hospital. The child might need lifesaving treatment with injectable antibiotics, oxygen, or other treatments that may not be available in your clinic.

Exercise A-1

Check the boxes below if the sign is a general danger sign.

Is this a general danger sign?		
The child is vomiting frequently. When you give milk, he holds it down.	YES	NO
The child will not take the mother's breast.	YES	NO
The child lies in his caregiver's arms. When you clap he follows you.	YES	NO
The child had convulsions last night and today. The child has been ill for 4 days.	YES	NO
The child's eyes are open, but he is limp and will not respond to you.	YES	NO
The child will not move, but after efforts to wake him, he walks around.	YES	NO

Now you will practice on a case study. Read the following case study and complete the recording form as instructed.

Sakina is 15 months old. She weighs 8.5 kg. Her temperature is 38.5 ℃. The health worker asked, "What are the child's problems?" The mother said, "Sakina has been coughing for 4 days, and she is not eating well." This is Sakina's initial visit for this problem. The health worker checked Sakina for general danger signs. He asked, "Is Sakina able to drink or breastfeed?" The mother said, "No. Sakina does not want to breastfeed." The health worker gave Sakina some water. She was too weak to lift her head. She was not able to drink from a cup. Next he asked the mother, "Is she vomiting?" The mother said, "No." Then he asked, "Has she had convulsions?" The mother said, "No." The health worker looked to see if Sakina was lethargic or unconscious. When the health worker and the mother were talking, Sakina watched them and looked around the room.

Here is the top part of a Recording Form:

1. Write Sakina's name, age, weight, height, and temperature in the spaces provided.
2. Write Sakina's problem on the line after the question "Ask-What are the child's problems?"
3. Tick (✓) whether this is the initial or follow-up visit for this problem.
4. Does Sakina have a general danger sign? If yes, circle her general danger sign in the box with the question, "Check for general danger signs."
5. In the top row of the "Classify" column, tick either Yes or No if "Danger sign present?

IMNCI Case Recording Form: MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

ID No._____

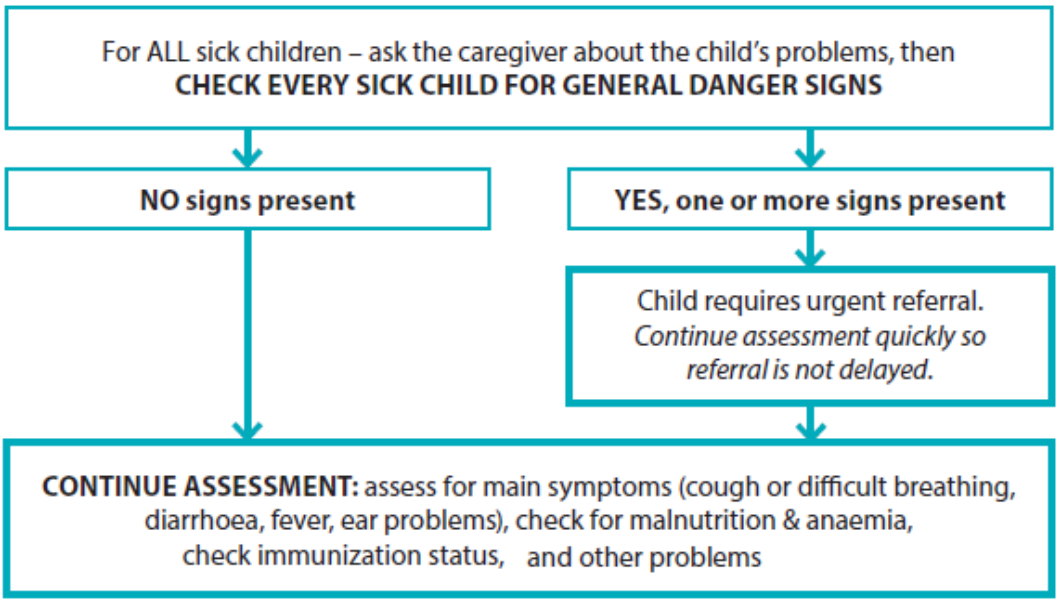
Name_____Age_____Months Weight_____Kg Temperature ^{O}_C____ ^{O}F

ASK What are the child's problems?_____Initial visit?_____Follow up visit?_____

ASSESS (Circle all signs present)		**CLASSIFY**
CHECK FOR GENERAL DANGER SIGNS LETHARGIC OR UNCONSCIOUS NOT ABLE TO DRINK OR BREASTFEED CONVULSIONS	CONVULSING NOW VOMITS EVERYTHING **ANY GENERAL DANGER SIGN PRESENT YES___ NO___ (remember to use when selecting classification)**	

HOW DOES THE ASSESSMENT CONTINUE AFTER CHECKING FOR GENERAL DANGER SIGNS?

A child with any general danger sign needs **URGENT** attention. You should complete the assessment and administer any pre-referral treatment immediately so that the referral is not delayed.



First, assess for main symptoms

These are symptoms of the most common causes of illness and death in children under five years. When a main symptom is present, a child could have a serious illness. These symptoms include cough or difficult breathing, diarrhoea, and fever. A number of illnesses – including pneumonia, malaria, or an infection – cause these symptoms.

Second, assess the child's nutritional status

You have learned that under nutrition is a very common underlying cause of child mortality. Even children with mild and moderate malnutrition have an increased risk of death. When a caregiver brings her child to the clinic, it is usually because the child has an acute illness.

A sick child can be malnourished, but you or the child's family may not notice the problem. The child may have no complaints that point to malnutrition or anaemia.

CARE WHEN URGENT REFERRAL IS REQUIRED

WHEN IS URGENT REFERRAL REQUIRED?

Children with **general danger signs and/or any condition with a red classification** require urgent pre-referral treatment and referral. These classifications indicate very serious illness. Review the CLASSIFY table for general danger signs below. This is a red classification. You will also see the identified treatments in the right-side TREAT column.

It is important to remember that once you have identified a general danger sign, you must conduct the IMNCI assessment and determine any pre-referral treatment so that you do not delay the referral.

HOW DO YOU DETERMINE URGENT PRE-REFERRAL TREATMENT?

Urgent pre-referral treatments are in bold print on the classification charts in your chart booklet. Open your classification tables: do you see the treatment identified in bold? For example, the **PNEUMONIA** classification below specifies **Amoxicillin** as a pre-referral treatment

These are specified because some treatments should not be given before referral. Treatments that are not urgently needed will only delay referral. For example, do not teach a caregiver how to treat a local infection or give immunizations before referral.

FLIP THROUGH YOUR CHART BOOKLET TO SEE THE PRE-REFERRAL TREATMENTS:

As you look through your charts, can you see the **bold** pre-referral treatments? Look through each chart and identify the pre-referral treatments in bold. Here are some examples of what you will see. You will learn more about the classifications below.

CLASSIFICATION	PRE-REFERRAL TREATMENT IDENTIFIED
SEVERE PNEUMONIA or VERY SEVERE DISEASE	Requires first dose of an appropriate antibiotic, treat for low blood sugar
PNEUMONIA	First dose of oral amoxicillin
SEVERE or SOME DEHYDRATION (with another severe classification)	Requires the caregiver to give frequent sips of ORS on the way to hospital, and continue breastfeeding
VERY SEVERE FEBRILE DISEASE	Requires treatment for malaria or dengue if necessary, and first doses of antibiotic and Paracetamol for high fever
MEASLES	Requires treatment for malaria, if necessary, and first dose of paracetamol for high fever
SEVERE ACUTE MALNUTRITION	Requires treatment for low blood sugar, keeping child warm, and first dose of antibiotic
MEASLES-RELATED COMPLICATIONS	Requires Vitamin A treatment, and treatment if complications

1.1 HOW DO YOU URGENTLY REFER THE CHILD?

There are four steps to referring a child or a sick young infant to hospital:

1. EXPLAIN to the caregiver the need for referral and get her agreement to take the child.

If you suspect that she does not want to take the child, find out why. Possible reasons might be:

- She thinks hospitals are places where people often die. She fears her child will die there too.
- She does not think that the hospital will help the child.
- She cannot leave home and stay in the hospital to care for her child, if there is no one to take care of her other children, or she is needed for farming, or she may lose a job.
- She does not have money to pay for transportation, hospital bills, medicines, or food for herself during the hospital stay.

2. CALM the caregiver's fears and help her resolve any problems.

For example: if the caregiver fears that her child will die at the hospital, reassure her that the hospital has physicians, supplies, and equipment that can help cure her child.

- Explain what will happen at the hospital and how that will help her child.
- If the caregiver needs help at home while she is at the hospital, ask questions and make suggestions about who could help. For example, ask whether her husband, sister or caregiver could help with the other children or with meals while she is away.
- Discuss how she can travel to the hospital. Help arrange transportation if necessary.
- You may not be able to help the caregiver solve her problems and be sure that she goes to the hospital. However, it is important to do everything you can to help.

3. WRITE A REFERRAL NOTE for the caregiver to carry.

Tell her to give it to the health worker there. The note should include:

- The name and age of the infant or child
- The date and time of referral
- Description of the child's problems
- The reason for referral (signs/symptoms for classification)
- Treatment that you have given
- Any other information that the hospital needs to know in order to care for the child, such as earlier treatment of the illness or immunizations needed
- Your name and the name of your clinic

4. GIVE SUPPLIES AND INSTRUCTIONS NEEDED to care for her child on the way to the hospital:

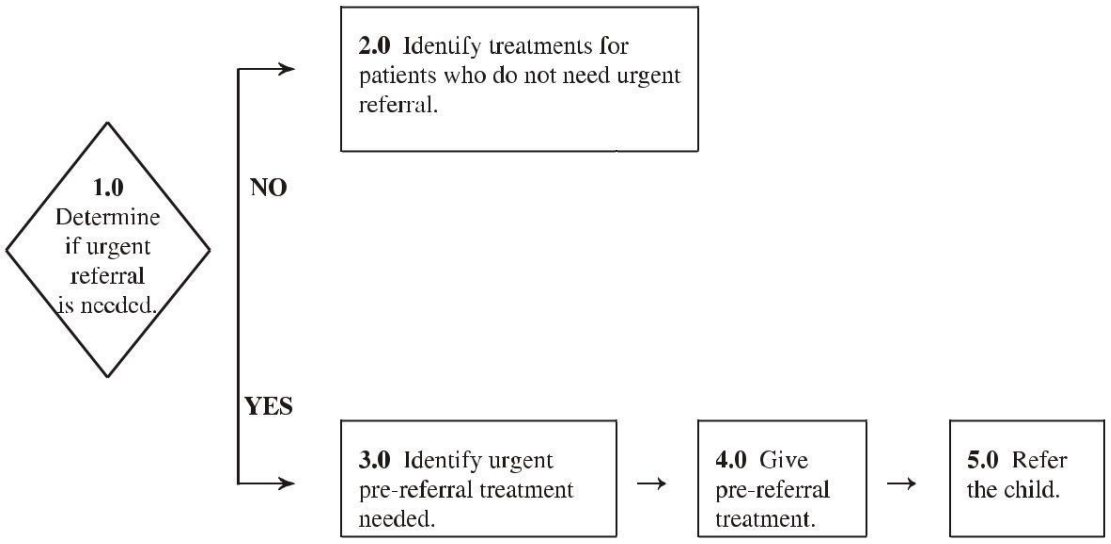
If the hospital is far, give the caregiver additional doses of antibiotic and tell her when to give them during the trip (according to dosage schedule on the **TREAT** chart). *If you think the caregiver will not actually go to the hospital, give her the full course of antibiotics, and teach her how to give them*.

✓ Tell the caregiver how to keep the young child warm during the trip.

✓ Advise the caregiver to continue breastfeeding.

✓ If the child has some or severe dehydration and can drink, give the caregiver some ORS solution for the child to sip frequently on the way.

REMEMBER: Any child with a general danger sign or a serious classification requires urgent referral.



1.2 WHAT IF REFERRAL IS NOT POSSIBLE?

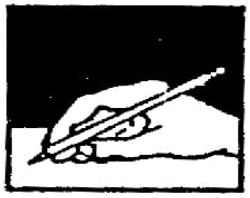
The best possible treatment for a child with a very severe illness is usually at a hospital. Sometimes referral is not possible or not advisable. Distances to a hospital might be too far; the hospital might not have adequate equipment or staff to care for the child; transportation might not be available. Sometimes parents refuse to take a child to a hospital, in spite of the health worker's effort to explain the need for it.

If referral is not possible, you should do whatever you can to help the family care for the child. If referral is not possible, continue with pre-referral treatment until the child is able to leave for the hospital. If the child improves on pre-referral treatment, initiate treatment in the clinic (e.g. the YELLOW classification). Advise the caregiver on all available treatment.

To help reduce deaths in severely ill children who cannot be referred, you may need to arrange to have the child stay in or near the clinic where he may be seen several times a day. If not possible, arrange for visits at home. **There is more information about when a referral is not possible in the ANNEX.**

When you can refer, remember to:

1. **Explain to the mother**
2. **Calm fears**
3. **Write a referral note**
4. **Give supplies & instructions for journey**



EXERCISE A 2

In this exercise you will decide whether or not urgent referral is needed. Tick the appropriate answer.

1. Sara is an 11-month-old girl. She has no general danger signs. She has:

   PNEUMONIA
   ACUTE EAR INFECTION
   NO ACUTE MALNUTRITION
   NO ANAEMIA
   No other classifications
   Does Sara need urgent referral? YES ____ NO____

2. Naema is a 6-month-old girl. She has no general danger signs. She has:

   NO PNEUMONIA: COUGH OR COLD Diarrhoea with NO DEHYDRATION
   PERSISTENT DIARRHOEA
   NO ACUTE MALNUTRITION
   NO ANAEMIA
   No other classifications
   Does Naema need urgent referral? YES ____ NO____

3. Dawood is a 7-month-old boy. He has no general danger signs. He has:

   MASTOIDITIS
   VIVAX MALARIA
   NO ACUTE MALNUTRITION
   NO ANAEMIA
   No other classifications
   Does Dawood need urgent referral? YES ____ NO____

4. Muhammad is a 2-year-old boy. He had a convulsion this morning and is not eating well. He has:

   NO ACUTE MALNUTRITION
   NO ANAEMIA
   No other classifications.
   Does Muhammad need urgent referral? YES ____ NO__

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

2.0 IDENTIFY AND TREAT COUGH OR DIFFICULT BREATHING

WHAT CAUSES COUGH OR DIFFICULT BREATHING?

Many children who come to your clinic with a cough or difficult breathing may have mild respiratory infections. They may have a cold or bronchitis. These children are not seriously ill and do not need antibiotics, they can be treated at home.

However, some children with cough or difficult breathing may have pneumonia or another serious respiratory infection. You have learned that pneumonia is one of the greatest causes of child mortality in the world.

Children can die from bacterial pneumonia because they can't get enough oxygen (**hypoxia**) or they get a generalized infection (**sepsis**). Most pneumonia in developing countries is caused by bacteria and can be treated with antibiotics.

HOW CAN YOU IDENTIFY PNEUMONIA?

Pneumonia is a serious respiratory infection. You can identify children with pneumonia by checking for two clinical signs. When children develop pneumonia, their lungs become stiff. These two signs help show how stiff the lungs have become.

1. **FAST BREATHING:** is one of the body's responses to stuff lungs and hypoxia.

2. **CHEST INDRAWING:** develops when the lungs become even stiffer as the pneumonia becomes more severe.

TREAT THE CHILD WITH COUGH OR DIFFICULT BREATHING

REFRESH: WHAT DOES THE 'IDENTIFY TREATMENT' COLUMN IN THE CLASSIFICATION TABLE EXPLAIN?

The classification table identifies three pieces of critical information:

1. **Appropriate treatment** for each classification
2. **Where treatment is given**: either in a second-level facility (RED), at the clinic (YELLOW), or at home (GREEN)

3. **Pre-referral treatments**: are identified clearly (**in bold**) and are required if child needs urgent referral.

WHAT TREATMENTS ARE IDENTIFIED FOR COUGH OR DIFFICULT BREATHING?

Open your classification chart page 4. What treatments are listed in the "**IDENTIFY TREATMENT"** column for cough or difficult breathing? **There are three treatments that you will learn about in this section**:

Oral antibiotics (amoxicillin)

Remedy for soothing sore throats

Inhaler treatment if wheezing

Follow along with your Chart Booklet TREAT THE CHILD section. This section of charts provides detailed instructions for providing each of these listed treatments.

HOW WILL YOU GIVE ORAL ANTIBIOTICS?

It is important to review some general instructions on giving antibiotics with integrated management, as this is the first time you are learning about antibiotic use within IMNCI. You will refer back to this information when later discussing antibiotic treatment.

HOW DO YOU SELECT THE APPROPRIATE ANTIBIOTIC?

Many health facilities have more than one type of antibiotic. You must learn to select the most appropriate antibiotic for the child's illness. **Some important instructions for giving antibiotics include**:

- **GIVING FIRST LINE**: Give the "first-line" oral antibiotic if it is available. It has been chosen because it is effective, easy to give and inexpensive.

- **GIVING SECOND LINE**: You should give the "second-line" antibiotic only if the first-line antibiotic is not available, or if the child's illness does not respond to the first-line antibiotic.

- O**RAL ANTIBIOTICS**: If the child is able to drink, give an oral antibiotic. The appropriate oral antibiotic for each illness varies by country. The antibiotics recommended in Pakistan are on the TREAT THE CHILD chart.

INTEGRATED MANAGEMENT: GIVING ANTIBIOTICS

- **GIVE FIRST LINE** antibiotics
- **GIVE SECOND LINE** only if first line not available, or if child does not respond to first.
- **WHERE CHILD HAS TWO+ CLASSIFICATIONS REQUIRING ANTIBIOTICS** treat with one antibiotic for both classifications if possible

WHAT IF THE CHART IDENTIFIES MORE THAN ONE ILLNESS REQUIRING ANTIBIOTICS?

However, if an antibiotic is needed for more than one problem, you should list it each time, for example:

MULTIPLE ILLNESSES, MULTIPLE ANTIBIOTICS:

Sometimes more than one antibiotic must be given to treat multiple health problems. For example, the antibiotics used to treat PNEUMONIA may not be effective against DYSENTERY in your country. Here, a child who needs treatment for DYSENTERY and PNEUMONIA must be treated with two antibiotics.

How do you decide on the appropriate dosage?

The TREAT THE CHILD chart has the **schedule** and **dose** for giving antibiotics.

SCHEDULE tells you ***how many days*** and ***how many times each day*** to give the antibiotic. Most antibiotics should be given for 5 days. Only cholera cases receive antibiotics for 3 days. The number of times to give the antibiotic each day varies depending on the type of antibiotic.

CORRECT DOSAGE of the antibiotic is determined by:

1. Identify the column of the type of tablets or syrup available in your clinic.

2. Choose the row for the child's weight or age. Use weight over age.

3. The correct dose is listed at the intersection of the column and row.

AGE OR WEIGHT	**AMOXICILLIN** *Give two times daily for 5 days for PNEUMONIA and ACUTE EAR INFECTION*	
	TABLET (250 mg)	SYRUP 250 mg/5 ml
2 months up to 12 months (4 – <10	1	5 ml
12 months up to 3 years (10 – <14 kg)	2	10 ml
3 years up to 5 years (14 – 19 kg)	3	15 ml

CRUSHING OR BREAKING TABLETS:

If a tablet has to be crushed before it is given to a child, add a few drops of clean water and wait a minute or so. This softens the tablet to make it easier to crush.

HOW ARE ANTIBIOTICS GIVEN FOR PNEUMONIA?

If the child is classified as **SEVERE PNEUMONIA**, the first dose of the antibiotic should be given before urgent referral. If the classification is **PNEUMONIA**, you will give the first dose of **oral amoxicillin** in the clinic and teach the caregiver how to give the remaining 5 days of treatment at home. Amoxicillin is now the recommended first-line antibiotic to treat pneumonia due to its efficacy, and the increasing resistance to cotrimoxazole.

Now that you have learned how to give oral antibiotics, you will examine other treatments required for cough or difficult breathing classifications.

ADVISE THE MOTHER HOW TO TREAT HER CHILD AT HOME FOR PNEUMONIA

Some advice is simple. For example, you may only need to tell the mother to return with the child for follow-up in 2 days. Other advice requires that you teach the mother **how to do** a task. Teaching how to do a task requires several steps.

Think about how you learned to write, cook or do any other task that involved special skills. You were probably first given instructions. Then you may have watched someone else. Finally, you tried doing it yourself.

When you teach a mother how to treat a child, use 3 basic teaching steps:

1. Give **information**.
2. Show an **example**.
3. Let her **practice**.

The facilitator will create a role play to help you understand this process. The role play will cover the use of amoxicillin in Pneumonia.

GIVE INFORMATION: Explain to the mother how to do the task. For example, explain to the mother how to:

- Oral Amoxicillin at Home
- Give an Inhaler for Wheezing

Now that you have learned how to give oral antibiotics, you will examine other treatments required for cough or difficult breathing classifications.

HOW WILL YOU GIVE AN INHALER FOR WHEEZING?

If the child has wheezing and will require an inhaler treatment in the clinic or at home, review the TREAT THE CHILD chart for inhaled salbutamol for wheezing.

From salbutamol metered dose inhaler (100 µg/puff) give 2 puffs.

Repeat up to 3 times every 15–20 minutes before classifying pneumonia.

A spacer is a way of delivering the bronchodilator medicines effectively into the lungs. A spacer works as well as a nebuliser if correctly used. No child under 5 should be given an inhaler without a spacer.

If commercial spacers are not available, spacers can be easily made with a drink bottle (500 ml) or something similar. Using a sharp knife, cut a hole in the bottle base in the same shape as the mouthpiece of the inhaler. Cut the bottle between the upper quarter and the lower ¾. Disregard the upper quarter of the bottle. Cut a small V in the border of the large open part of the bottle to fit to the child's nose and be used as a mask. Flame the edge of the cut bottle with a candle or a lighter to soften it. In a small baby, a mask can be made by making a similar hole in a plastic (not polystyrene) cup.

To use an inhaler with a spacer:

Remove the inhaler cap. Shake the inhaler well.

Insert mouthpiece of the inhaler through the hole in the bottle or plastic cup.

The child should put the opening of the bottle into his mouth and breath in and out through the mouth.

A carer then presses down the inhaler and sprays into the bottle while the child continues to breath normally.

Wait for three to four breaths and repeat.

For younger children place the cup over the child's mouth and use as a spacer in the same way.

If a spacer is being used for the first time, prime with 4-5 extra puffs from the inhaler.

WHAT IS A SOOTHING REMEDY FOR THE THROAT?

Find this chart in your TREAT charts. To soothe the throat or relieve a cough, **use a safe remedy**. Such remedies can be homemade, given at the clinic, or bought at a pharmacy. It is important that they are safe. Homemade remedies are as effective as those bought in a store. Your TREAT THE CHILD chart recommends safe, soothing remedies for children with a sore throat or cough. If the child is exclusively breastfed, do ***not*** give other drinks or remedies. Breastmilk is the best soothing remedy for an exclusively breastfed child.

Harmful remedies may be used in your area. If so, they should be recorded in the box. Never use remedies that contain harmful ingredients, such as atropine, codeine or codeine derivatives, or alcohol. These items may sedate the child. They may interfere with the child's feeding. They may also interfere with the child's ability to cough up secretions from the lungs. Medicated nose drops (that is, nose drops that contain anything other than salt) should also not be used.

When explaining how to give the safe remedy, it is not necessary to watch the mother practice giving the remedy to the child. Exact dosing is not important with this treatment.

SOOTHING REMEDIES

SAFE	HARMFUL
✓ Breastmilk	X Atropine or codeine
✓ warm honey water	X Alcohol
✓ Green tea	X substance with sedation

Read the case description. Answer the questions.

Refer to your *TREAT THE CHILD* chart and use the recommended drugs.

Seven-month-old, weight: 7 kg, length: 68 cm MUAC: 127 mm, Maryam was brought to the clinic because she is coughing and seems very sick for the past one day. After assessing Maryam, the health worker finds that she has no general danger signs, no diarrhoea, no fever or no ear problems. She has cough with fast breathing, but no chest indrawing and no stridor or wheeze. The health worker classifies Maryam as having PNEUMONIA and NO ANAEMIA AND NO ACUTE MALNUTRITION The health worker will give an oral antibiotic.

- Determine the appropriate antibiotic, dose and schedule for Maryam. Write it in the space below.

  _____

- Write the major steps of how to teach Maryam's mother to give the oral antibiotic to her child in the space that follows.

  _____

  _____

  _____

- List at least 3 checking questions to ask Maryam's mother to make sure she understands how to give the oral antibiotic

  _____

  _____

  _____

- When should the mother bring Maryam back to the clinic for a follow-up visit? When should the mother bring Maryam back immediately?

  _____

- List at least 3 checking questions to ask Maryam's mother to make sure she knows when to bring Maryam back to the clinic.

  _____

  _____

  _____

Discuss your answers with the facilitator when you finish this exercise.

IMNCI Case Recording Form: MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

ID No._____

Name_____Age_____Months Weight_____Kg Temperature:^{O}_C____^{O}F

ASK What are the child's problems?_____Initial visit?_____Follow up visit?_____

ASSESS (Circle all signs present) | **CLASSIFY**

CHECK FOR GENERAL DANGER SIGNS

LETHARGIC OR UNCONSCIOUS
NOT ABLE TO DRINK OR BREASTFEED
CONVULSIONS

CONVULSING NOW
VOMITS EVERYTHING
ANY GENERAL DANGER SIGN PRESENT YES___ NO___ (remember to use when selecting classification)

DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? YES____ NO____

For how long? ____ Days
Look and listen for stridor
Look and listen for wheeze

Count the breaths in one minute. (child must be calm) _____ breaths per minute.
Fast breathing? YES____ NO____

DOES THE CHILD HAVE DIARRHOEA? YES____ NO____

For how long? ____ Days
Is there blood in the stools? YES____ NO____
Pinch the skin of the abdomen. Does it go back:
Very slowly (longer than 2 seconds)
Slowly

Look at the child's general condition. Is the child:
Lethargic or unconscious
Restless or irritable
Offer the child fluid. Is the child:
Not able to drink or drinking poorly?
Drinking eagerly, thirsty?

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

For how long? ____ Days
If more than 7 days, has fever been present every day?

Has child had measles within the last 3 months

Decide malaria risk High____ Low____ No____
Malaria transmission in the area = YES____ NO____
Transmission season = YES____ NO____
In non or low endemic areas
travel history within the last 15-days to an area
where malaria transmission occurs =YES____ NO ____

Look or feel for stiff neck.
Look for runny nose
Look for signs of MEASLES
Generalized rash ***AND***
One of these: cough, runny nose, or red eyes
Look for any other causes of fever
Look for signs and symptoms of DENGUE FEVER; if suspected do tourniquet test
(if yes, use the relevant treatment instructions)

Do a malaria test, if No general danger sign in all cases in
High malaria risk or No obvious causes of fever in low
Malaria risk:
Test POSITIVE? P. falciporium P. vlvax NEGATIVE?

If the child has measles now or within the last 3 months:

Look for mouth ulcers If YES are they deep and extensive?
Look for pus draining from the eye
Look for clouding of cornea

DOES THE CHILD HAVE AN EAR PROBLEM? YES____ NO____

Is there severe ear pain?
Is there ear discharge?
If Yes, for how long? ____ Days

Look for pus draining from the ear.
Feel for tender swelling behind the ear.

THEN CHECK FOR ACUTE MALNUTRITION AND ANAEMIA

Look for oedema of both feet
Determine WFH/L z-score:
Less than -3 Between -3 and -2 -2 or more
Child 6 months or older measure MUAC____ mm
Look for palmar pallor:
Severe palmar pallor Some palmar pallor No palmar pallor

If child has MUAC less than 115 mm or WFH/L less than -3 z-score

Is there any medical complication: General Danger Sign?
Any Severe Classification? Pneumonia with Chest Indrawing?
Child 6 months or older, Offer RUTF to eat. Is the child:
Not able to finish? Able to finish?
Child less than 6 months Is there a breastfeeding problem?

CHECK THE CHILD'S IMMUNIZATION, VITAMIN-A AND DEWORMING STATUS

BCG OPV0	OPV-I *Pentavalent–I Pneumococcal – I Rota 1	OPV-II *Pentavalent–II Pneumococcal – II Rota 2	OPV-III *Pentavalent–III Pneumococcal – III IPV	Measles-I	Measles-II**	Vitamin A Mebendazole

*Pentavalent: DPT+HepB+Hib ^If the child is seen b/w 12-15 months of age,
**2nd dose of measles can be given if one month passed since the Measles 1st dose is given

Return for next immunization on:

_____
(DATE)

ASSESS FEEDING if the child is less than 2 years old, has **MODERATE ACUTE MALNUTRITION, ANAEMIA.**

Do you breastfeed your child? YES____ NO____ If YES how many times in 24 hours? ____times. Do you breastfeed during the night?
Does the child take any other foods or fluids? YES____ NO____
If YES what foods or fluids?
How many times per day? ____times What do you use to feed the child?
If MODERATE ACUTE MALNUTRITION: How large are the servings?
Does the child receive his own serving? YES____ NO____ Who feeds the child and how?
During this illness, has the child's feeding changed? YES____ NO____
If YES, how?

FEEDING PROBLEMS

ASSESS OTHER PROBLEMS:	**ASK ABOUT MOTHER'S OWN HEALTH?**	**FOLLOW UP:**

3.0 IDENTIFY TREATMENT AND TREAT THE CHILD WITH DIARRHOEA

Children with diarrhoea are treated for dehydration. They are also treated for their diarrhoea, if they have persistent diarrhoea or dysentery.

WHAT TREATMENTS ARE IDENTIFIED FOR DIARRHOEA AND DEHYDRATION?

Identified treatments are listed below. These are all new treatments, so you will learn about all of them in this section:

- Plans A, B, and C for giving fluids and food
- Giving ORS for dehydration
- Zinc supplementation
- Ciprofloxacin for dysentery

DEHYDRATION: SICK CHILD

HOW DO YOU TREAT DEHYDRATION?

When you classified the severity of dehydration, you identified the appropriate treatment to replenish fluids or prevent dehydration.

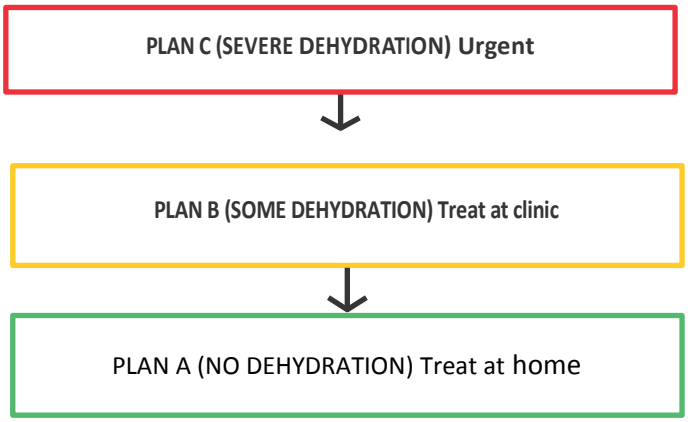
There are three plans to provide fluid and replace water and salts lost in diarrhoea:

PLAN A – treat diarrhoea at home

PLAN B – treat SOME DEHYDRATION with low osmolarity oral rehydration salts (ORS)

PLAN C – treat SEVERE DEHYDRATION quickly with intravenous (IV) fluids

In the following pages, you will now learn how to give Plans A, B, and C.



URGENT TREATMENT PLAN C (SEVERE DEHYDRATION)

HOW IS PLAN C GIVEN?

Severely dehydrated children and young infants need to have water and salts quickly replaced. Plan C requires rapid hydration using IV fluids or a nasogastric (NG) tube.

It is important to note that rehydration therapy using IV fluids or using a nasogastric (NG) tube is **recommended only for children who have SEVERE DEHYDRATION**.

WHERE IS PLAN C GIVEN?

Open to Plan C in your Chart Booklet. There is a flow chart determining where is the safest place to treat the severely dehydrated child.

You will observe that the treatment of the severely dehydrated child depends on:

- Type of available equipment at your clinic or at a nearby clinic or hospital,
- Training you have received

- If the child can drink

IN YOUR CLINIC, WHERE IS THE SAFEST PLACE TO GIVE PLAN C?

This is important for you to determine based on available equipment and your training. If you cannot give IV or NG fluid and the child cannot drink, refer the child urgently to the nearest hospital that can give IV or NG treatment.

If IV (intravenous) treatment is available within a 30-minute drive, refer urgently to hospital for treatment with IV fluids. On the way to hospital, have the mother offer frequent sips of ORS to her sick child.

Are you able to provide Plan C in your clinic?

If not, where will you refer?

PLAN B (SOME DEHYDRATION)

Treat at clinic

A child or young infant with some dehydration needs fluid, zinc supplementation, and food. You will give zinc just as you will for Plan A.

HOW IS PLAN B GIVEN?

Plan B begins with a 4-hour treatment period at the clinic. During the 4 hours, the mother slowly gives a recommended amount of ORS solution. If a child who has SOME DEHYDRATION needs treatment for other problems, you should start treating the dehydration first. Then provide the other treatments.

After the 4 hours, you will reassess and classify the child's dehydration. If the signs are gone, put the child on Plan A for home treatment. If there is still some dehydration, the child repeats Plan B. If the child now has SEVERE DEHYDRATION, put the child on Plan C.

WHAT HAPPENS IF A CHILD HAS A SEVERE CLASSIFICATION AND NEEDS PLAN B?

A child who has a severe classification and SOME DEHYDR ATION **needs urgent referral to** hospital[1]. Do not try to rehydrate the child before he leaves. Quickly give the mother some ORS solution. Show her how to give frequent sips to child on the way to the hospital.

HOW WILL YOU TEACH THE CAREGIVER TO GIVE ORS IN THE CLINIC?

Now study Plan B in your TREAT THE CHILD section. It contains the following instructions:

1. DETERMINE AMOUNT of ORS to give during first 4 hours.

Use the chart in Plan B to determine how much ORS to give. To find the recommended amount, look below the child's weight (or age only if the weight is not known). The child will usually want to drink as much as he needs. If the child wants more or less than the estimated amount, give him what he wants. The mother should also breastfeed whenever the baby wants to, then resume the ORS solution.

2. SHOW THE MOTHER HOW TO GIVE ORS SOLUTION.

Find a comfortable place in the clinic for the mother to sit with her child. **Tell her how much** ORS solution to give over the next 4 hours. **Show her the amount in units** that are used

[1] The exception is a child with the severe classification, SEVERE PERSISTENT DIARRHOEA. This child should be rehydrated then referred

in your area. If the child is less than 2 years, show her how to give a spoonful frequently. If the child is older, show her how to give frequent sips from a cup. **Sit with her while she gives the child the first few sips from a cup or spoon. Ask her if she has any questions**.

REFRESH: how do you decide amount of ORS to give?

1. Use chart in Plan B with child's weight
2. If no chart, multiple child's weight (kg) by 75 (Example: 8 kg child x 75 ml = 600 ml)

WHAT WILL YOU DO WHILE THE MOTHER GIVES ORS FOR 4 HOURS?

- **Show the caregiver** where to wash her hands, and where she can change the child's nappy or where the child can use a toilet.
- **Check with the mother from time to time to see if she has problems**. If the child is not drinking the ORS solution well, try another method of giving the solution. You may try using a dropper or a syringe without the needle.
- **This also provides valuable time to teach the mother about care for her child. The first concern is to rehydrate the child**. When the child is obviously improving, the mother can turn her attention to learning. Teach her about mixing and giving ORS solution (Plan A).
- It is a good idea to have **printed information** that the mother can study while she is sitting with her child. Posters on the wall can also reinforce this information.

TIPS FOR THE YOUNG INFANT

During the first 4 hours of rehydration, encourage the mother to pause to breastfeed the infant whenever the infant wants, then resume giving ORS. Give a young infant who does not breastfeed an additional 100–200 ml clean water during this period.

HOW WILL YOU REASSESS THE CHILD AFTER 4 HOURS?

After four hours you will reassess the child using the ASSESS AND CLASSIFY chart. Classify the dehydration. Choose the appropriate plan to continue treatment. **If the child is not taking the ORS solution, or seems to be getting worse, reassess before the 4 hours end.**

If the child has **SOME DEHYDRATION**, choose Plan B again. Begin feeding the child in clinic. Offer food, milk, or juice. Continue to breastfeed frequently if child is breastfed.

If the child is worse and now has **SEVERE DEHYDRATION**, begin Plan C.

PLAN A (TREAT AT HOME)

If the child's eyes are puffy, it is a sign of **over hydration**. It is not a danger sign or a sign of hypernatremia. It is simply a sign that the child has been rehydrated and does not need any more ORS solution at this time. The child should be given clean water or breastmilk, and ORS according to Plan A when the puffiness is gone.

WHAT HAPPENS IF A CAREGIVER MUST LEAVE BEFORE FINISHING 4 HOURS OF ORS?

1. Show the caregiver how to prepare ORS solution and have her practice.
2. Show her how much ORS to give to complete the 4-hour treatment at home.
3. Give her packets to complete rehydration PLUS 2 more packets as recommended in Plan A.
4. Explain 4 rules of home treatment

A child with diarrhoea but no dehydration requires fluid, zinc, and food to prevent dehydration. This child can be treated at home with Plan A.

WHAT IS PLAN A?

Plan A is based on the four rules of home treatment. These are critical for you to remember. Plan A requires you to counsel the child's mother about the 4 rules of home treatment. As such, your teaching and advising skills are an important part of Plan A.

Plan A is also an important treatment plan because eventually, all children with diarrhoea will require Plan A. Children with diarrhoea who come to a health worker with NO DEHYDRATION are put on Plan A right away. Child with more serious dehydration will first be treated with Plan B or C, and then they will be put on Plan A.

WHAT ARE THE 4 RULES OF HOME TREATMENT?

The four rules of home treatment are very important to remember:

1. Give extra fluid – as much as the child will take
2. Give zinc
3. Continue feeding
4. When to return (for a follow-up visit, or immediately if danger signs develop)

Now you will learn more about the four rules of home treatment. Open to Plan A in your Chart Booklet to read along with the instructions.

RULE 1: GIVE EXTRA FLUID

Tell the caregiver to give as much fluid as the child will take. It is very important for the child to have extra fluid – as much as the child will take. The purpose of giving extra fluid is to replace the fluid lost in diarrhoea and thus to prevent dehydration. The critical action is to give more fluid than usual, as soon as the diarrhoea starts.

HOW SHOULD THE CAREGIVER GIVE EXTRA FLUID?

Tell the mother that **breastfeeding** should continue, with the addition of **ORS** and **clean water**. If the child is exclusively breastfed, it is important for this child to be breastfed more frequently than usual. Breastfed children under 4 months should first be offered a breastfeed then given ORS.

If the child is not being breastfed, the child should receive ORS solution, food- based fluids (soup, rice water, yoghurt drinks), and clean water. Advise the mother to use food-based fluids commonly available at home.

TIPS FOR THE YOUNG INFANT

- **If infant is exclusively breastfed**, it is important not to introduce a food-based fluid.
- **If infant will be given ORS solution at home**, you will show how much ORS to give the infant after each loose stool. Mother should first offer a breastfeed, then give ORS.

HOW WILL YOU TEACH THE CAREGIVER TO MIX ORS?

Teach the caregiver how to mix and give ORS. Ask the caregiver to practice doing it as you observe. The steps for making ORS are (follow along in drawings below):

✓ Wash your hands with soap and water

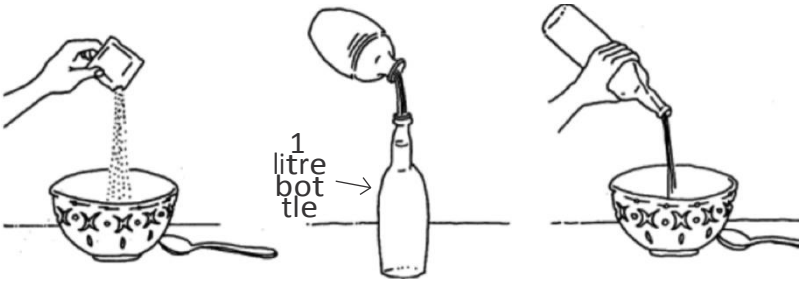
✓ **Pour all the powder** from one packet into a clean container. Use any available container, such as a jar, bowl or bottle.

✓ **Measure 1 litre of clean water (or correct amount for packet used)**. It is best to boil and cool the water, but if this is not possible, use the cleanest drinking water available.

✓ **Pour the water into the container**. Mix well until the powder is completely dissolved.

✓ Taste the solution so you know how it tastes.

The caregiver should mix fresh ORS every day, in a clean container. She should keep the container covered. She should throw away any solution remaining from the day before.



HOW WILL THE CAREGIVER GET ORS TO USE IN THE HOME?

Give the caregiver 2 packets of ORS to use at home. Show her how much fluid should be given in addition to the usual fluid intake:

- Up to 2 years: 50–100 ml after each loose stool
- 2 years or older: 100–200 ml after each loose stool

HOW WILL YOU TEACH THE CAREGIVER TO GIVE ORS?

Finally, give the caregiver instructions for giving ORS:

1. Give frequent small sips from a cup
2. If child vomits, wait 10 minutes. Then continue, but more slowly.
3. Continue giving extra fluid until the diarrhoea stops.

WHEN IS ORS ESPECIALLY IMPORTANT?

It is especially important to give ORS at home when:

✓ Child was treated with Plan B or C during this visit – in other words, the child has just been rehydrated and needs ORS to prevent dehydration from coming back

✓ Child cannot return to the clinic if the diarrhoea gets worse – for example, if the family lives far away or the mother has a job that she cannot leave

RULE 2: GIVE ZINC SUPPLEMENTS

Zinc treatment can **considerably reduce the duration and severity of a child's diarrheal episode**. It is also shown to decrease stool output and decrease the need to hospitalize a child with diarrhoea.

Zinc is only given to children 2 months up to 5 years. This box describes how much zinc to give a child with diarrhoea. Review this information in Plan A in your Chart Booklet.

GIVE ZINC SUPPLEMENTS (one tablet is 20 mg zinc DT)

Remind the caregiver to give zinc supplements for the full 14 days

Tell the caregiver how much zinc to give

Up to 6 months: ½ tablet per day, for 14 days

6 months or older: 1 tablet per day, for 14 days

Show the caregiver how to give zinc supplements

Infants: dissolve the tablet in a small amount of breast milk, ORS, or clean water in a small cup or spoon

Older children: tablets can be chewed or dissolved in small amount of clean water in a cup or spoon

RULE 3: CONTINUE FEEDING

You will learn more about special feeding recommendations if the child has persistent diarrhoea

RULE 4: WHEN TO RETURN

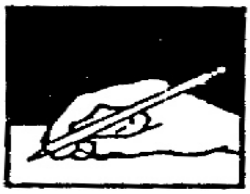
You have learned the signs when a caregiver should return immediately to a health worker.

Tell the mother of any sick child that the signs to return are:

- Not able to drink or breastfeed
- Becomes sicker
- Develops a fever

If the child has diarrhoea, also tell the mother to return if the child has:

- Blood in stool
- Drinking poorly – also includes not able to drink or breastfeed



EXERCISE B

1. Sami is a 4-year-old boy, weight 12 kg, height: 98 cm, MUAC: 130 mm who has diarrhoea. He has no general danger signs. He was classified as having diarrhoea with NO DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. He will be treated according to Plan A.

a. What are the four rules of home treatment of diarrhoea?

_____

_____

_____

_____

b. What fluids should the health worker tell his mother to give?

IMNCI Case Recording Form: MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

ID No._____

Name_____Age_____Months Weight_____Kg Temperature:^{O}_C____^{O}F

ASK What are the child's problems?_____Initial visit?_____Follow up visit?_____

ASSESS (Circle all signs present)	**CLASSIFY**
CHECK FOR GENERAL DANGER SIGNS LETHARGIC OR UNCONSCIOUS NOT ABLE TO DRINK OR BREASTFEED CONVULSIONS CONVULSING NOW VOMITS EVERYTHING **ANY GENERAL DANGER SIGN PRESENT YES___ NO___ (remember to use when selecting classification)**	
DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? YES____ NO____ For how long? ____ Days Look and listen for stridor Look and listen for wheeze Count the breaths in one minute. (child must be calm) _____ breaths per minute. Fast breathing? YES____ NO____	
DOES THE CHILD HAVE DIARRHOEA? YES____ NO____ For how long? ____ Days Is there blood in the stools? YES____ NO____ Pinch the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds) Slowly Look at the child's general condition. Is the child: Lethargic or unconscious Restless or irritable Offer the child fluid. Is the child: Not able to drink or drinking poorly? Drinking eagerly, thirsty?	
DOES THE CHILD HAVE FEVER? (by history/feels hot/temperature 37.5C or above) YES____ NO____ For how long? ____ Days If more than 7 days, has fever been present every day? Has child had measles within the last 3 months Decide malaria risk High____ Low____ No____ Malaria transmission in the area = YES____ NO____ Transmission season = YES____ NO____ In non or low endemic areas travel history within the last 15-days to an area where malaria transmission occurs =YES____ NO ____ Look or feel for stiff neck. Look for runny nose Look for signs of MEASLES Generalized rash ***AND*** One of these: cough, runny nose, or red eyes Look for any other causes of fever *Look for signs and symptoms of DENGUE FEVER; if suspected do tourniquet test* (if yes, use the relevant treatment instructions) Do a malaria test, if No general danger sign in all cases in High malaria risk or No obvious causes of fever in low Malaria risk: Test POSITIVE? P. falciporium P. vlvax NEGATIVE?	
If the child has measles now or within the last 3 months: Look for mouth ulcers If YES are they deep and extensive? Look for pus draining from the eye Look for clouding of cornea	
DOES THE CHILD HAVE AN EAR PROBLEM? YES____ NO____ Is there severe ear pain? Is there ear discharge? If Yes, for how long? ____ Days Look for pus draining from the ear. Feel for tender swelling behind the ear.	
THEN CHECK FOR ACUTE MALNUTRITION AND ANAEMIA Look for oedema of both feet Determine WFH/L z-score: Less than -3 Between -3 and -2 -2 or more Child 6 months or older measure MUAC____ mm Look for palmar pallor: Severe palmar pallor Some palmar pallor No palmar pallor	
If child has MUAC less than 115 mm or WFH/L less than -3 z-score Is there any medical complication: General Danger Sign? Any Severe Classification? Pneumonia with Chest Indrawing? Child 6 months or older, Offer RUTF to eat. Is the child: Not able to finish? Able to finish? Child less than 6 months Is there a breastfeeding problem?	
CHECK THE CHILD'S IMMUNIZATION, VITAMIN-A AND DEWORMING STATUS	

BCG OPV0	OPV-I *Pentavalent–I Pneumococcal – I Rota 1	OPV-II *Pentavalent–II Pneumococcal – II Rota 2	OPV-III *Pentavalent–III Pneumococcal – III IPV	Measles-I	Measles-II**	Vitamin A Mebendazole

*Pentavalent: DPT+HepB+Hib ^If the child is seen b/w 12-15 months of age,
**2nd dose of measles can be given if one month passed since the Measles 1st dose is given

Return for next immunization on:

_____

(DATE)

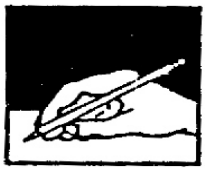
ASSESS FEEDING if the child is less than 2 years old, has **MODERATE ACUTE MALNUTRITION, ANAEMIA.**
Do you breastfeed your child? YES____ NO____ If YES how many times in 24 hours? ____times. Do you breastfeed during the night?
Does the child take any other foods or fluids? YES____ NO____
If YES what foods or fluids?
How many times per day? ____times What do you use to feed the child?
If MODERATE ACUTE MALNUTRITION: How large are the servings?
Does the child receive his own serving? YES____ NO____ Who feeds the child and how?
During this illness, has the child's feeding changed? YES____ NO____
If YES, how?

FEEDING PROBLEMS

ASSESS OTHER PROBLEMS:	**ASK ABOUT MOTHER'S OWN HEALTH?**	**FOLLOW UP:**

2. Kamran is a 3-month-old boy who has diarrhoea. He has no general danger signs. He was classified as NO DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. He is exclusively breastfed. What should the health worker tell his mother about giving him extra fluids?

3. For which children with NO DEHYDRATION is it especially important to give ORS at home?



EXERCISE C

The following children came to the clinic because of diarrhoea. They were assessed and found to have SOME DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. Write the range of amounts of ORS solution each child is likely to need in the first 4 hours of treatment:

	Name	Age or Weight	Range of Amounts of ORS Solution
a)	Ali	3 years	
b)	Gul	10 kg	
c)	Umer	7.5 kg	
d)	Sami	11 months	

1. Noshi is 5 months old and has diarrhoea. She is classified as SOME DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. There is no scale for weighing Noshi at the small clinic. Noshi 's mother died during childbirth, so Noshi has been taking infant formula. The grandmother has recently started giving cooked cereal as well.

   a. Noshi should be given _____ ml of _____during the first _____ hours of treatment. She should also be given_____ml of _____ during this period.

   b. What should the grandmother do if Noshi vomits during the treatment?

   c. When should the health worker reassess Nosh

d. When Noshi is reassessed, she has NO DEHYDRATION. What treatment plan should Noshi be put on?

e. How many one-litre packets of ORS should the health worker give the grandmother?

f. To continue treatment at home, the grandmother should give Noshi _____ml of _____ after each _____.

2. Yasmin is 9 months old and weighs 8 kg. Her mother brought her to the clinic with diarrhoea. The health worker assesses Yasmin as SOME DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. The health worker chooses Plan B.

   He asks if Yasmin still breastfeeds. Her mother says that she breastfeeds several times each day. She also eats 3 meals each day of rice along with vegetables, pulses, and sometimes bits of meat.

   a. Approximately how much ORS solution should Yasmin's mother give her during the first 4 hours?

   b. During the first 4 hours of treatment, should Yasmin eat or drink anything in addition to the ORS solution? If so, what?

c. After 4 hours of treatment, the health worker reassesses Yasmin. She is still classified as SOME DEHYDRATION. What is the appropriate plan to continue her treatment?

d. Describe the treatment to give Yasmin now. (Hint: Your answer should include more than ORS solution.)

3. A mother and her child must leave the clinic before the child is fully rehydrated. What should the health worker do before the mother leaves? Complete the list below:
   - Show her how to prepare ORS at home
   -
   -
   - Explain the 4 rules of Home Treatment
     1.
     2.
     3.
     4.

Ask the facilitator to review your answers when you have finished the exercise.
Your facilitator will lead a drill to practice determining amounts of ORS to give children on Plan B.

EXERCISE D

In this role play a health worker will teach a mother how to care for a dehydrated child. In the first part, the child needs Plan B. In the second part, the child is ready for Plan A.

THE SITUATION -- What has happened so far:

A young mother brought 2-year-old Laila to the clinic because she has had diarrhoea for 1½ days. The health worker found no general danger signs. There was no blood in the stool. Laila was irritable. Her eyes looked sunken. When pinched, the skin of Laila's abdomen went back immediately. She drank eagerly. She had no other problems. The health worker classified Laila as SOME DEHYDRATION. She has no other disease classifications and NO ANAEMIA AND NO ACUTE MALNUTRITION. The health worker selected Plan B treatment with ORS solution.

HEALTH WORKER:

To start the role play, tell the mother that Laila needs treatment with ORS. Ask the mother to stay at the clinic to give Laila ORS solution. Then follow Plan B to get the mother started giving ORS solution. Show the mother how much ORS to give. Show her how to give it. Answer her questions and help with any problems.

MOTHER:

Listen to the health worker and try to do what he says. Ask questions about anything that is not clear. After you have given ORS solution for a few minutes, tell the health worker that Laila just vomited the solution.

OBSERVERS:

Look at Plan B and observe the role play. Notice what the health worker explains well and what could be done better.

The facilitator will start the role play and then stop it after a few minutes for a discussion of Plan B.

4.0 TREAT THE CHILD WITH FEVER

HOW WILL YOU TREAT FEVER?

Return to your classification charts for fever and measles. What treatments do you see in the IDENTIFY TREATMENT columns?

You will review treatments for fever, malaria and dengue in this section:

As you read more about each, follow along with your TREAT THE CHILD charts.

- ✓ Give antibiotics
- ✓ Treat for low blood sugar
- ✓ Treat for seizures (due to very severe febrile disease)
- ✓ Give quinine or artesunate for severe malaria
- ✓ Give paracetamol
- ✓ Give first-line oral antimalarials
- ✓ Give Vitamin A
- ✓ Treat Dengue

Some treatments are to be given at home like:

- ✓ Apply eye ointment
- ✓ Treat with gentian violet

TREAT FEVER

GIVE AN INTRAMUSCULAR ANTIBIOTIC

A child who needs urgent referral may need an antibiotic before he leaves the clinic.

Give this child a single dose of Ampicillin & Gentamicin by intramuscular injection. Then refer the child urgently to the hospital.

Follow these steps to administer the antibiotics intramuscularly in the clinic:

1. Use the *TREAT THE CHILD* chart to determine the appropriate dose. Check which concentration is available in your clinic. Make sure you read the chart correctly for the concentration you are using.

2. Use a sterile needle and syringe to give the injection.

   Below is an illustration of the type of syringe used for Ampicillin and Gentamycin injections. Use a syringe with fine gradations. Measure the dose accurately.

3. Give the drug as a deep intramuscular injection

4. Refer the child urgently. The child should be carried.

TREAT THE CHILD TO PREVENT LOW BLOOD SUGAR

Preventing low blood sugar is an ***urgent pre-referral treatment*** for children with VERY SEVERE DISEASE, VERY SEVERE FEBRILE DISEASE, THROAT ABSCESS, MASTOIDITIS, COMPLICATED SEVERE MEASLES, COMPLICATED SEVERE ACUTE MALNUTRITION, SEVERE ANAEMIA.

Low blood sugar occurs in serious infections such as severe malaria or meningitis. It also occurs when a child has not been able to eat for many hours. It is dangerous because it can cause brain damage.

Giving some breast-milk, breast-milk substitute, or sugar water provides some glucose to treat and prevent low blood sugar. This treatment is given once, before the child is referred to the hospital.

If the child cannot swallow and you know how to use a nasogastric (NG) tube, give him 50 ml of milk (expressed breast-milk or breast-milk substitute) or sugar water by NG tube[2].

TREAT A CONVULSING CHILD WITH DIAZEPAM

Diazepam is the main treatment for current convulsion. (Do not give diazepam if child has only a history of convulsions but is not convulsing now). The treatment of convulsions also includes managing the airway to be sure the child can breathe, reducing high fever rapidly, and treating the child to prevent low blood sugar.

- **Manage the airway**

Make sure that the child is able to breathe. Turn the child on his or her side to reduce the risk of aspiration (that is, drawing fluid, vomit, or mucous into the lungs with a breath). Do not try to insert anything in the mouth to keep it open. If secretions are interfering with breathing, insert a catheter through the nose into the throat and remove the secretions by suction.

If the lips and tongue are blue, open the mouth to see that it is clear or put a finger into the mouth to scoop anything out.

- Give diazepam rectally
- Obtain an intravenous ampoule of diazepam. Determine the correct dose of diazepam according to the age or weight of the child.
- Draw up the diazepam dose into a tuberculin syringe and add 2-3 ml of water, **then remove the needle.**
- Attach a piece of nasogastric tube to the syringe if available.
- Insert 4-5 cm of the tube or the tip of the syringe into the rectum and inject the diazepam solution.
- Hold the buttocks together for a few minutes.
- Expect the effect in a few minutes. If convulsions continue, repeat the same dose in 10 minutes. If the child continues to convulse, the dose can be repeated a third time 10 minutes later if the child is breathing well. Diazepam can cause respiratory depression.
- **If high fever, lower the fever:** A high fever can be the cause of a convulsion. Therefore, it is important to rapidly reduce the fever. Sponge the child with room-temperature water to reduce the fever immediately. Sponging is justified only in a child with convulsions because it is important to reduce the high fever as soon as possible. When a child is convulsing actively, it is not safe to administer oral drugs such as paracetamol because of the risk of aspiration. Wait until the child is fully awake before giving paracetamol.
- **Treat the child to prevent low blood sugar:** Children who are convulsing may have low blood sugar. After the convulsions are controlled, treat the child to prevent low blood sugar. Avoid giving a large volume of fluid, in case the child convulses again. Too much fluid could lead to aspiration.

[2] If you are trained to use an NG tube, Annex A - steps 1 through 8, review how to insert the NG tube.

MALARIA

HOW WILL YOU GIVE QUININE OR ARTESUNATE FOR SEVERE MALARIA?

A child with VERY SEVERE FEBRILE DISEASE may have severe malaria. To kill malaria parasites as quickly as possible, give a quinine injection before referral.

Possible side effects of a quinine injection are a sudden drop in blood pressure, dizziness, ringing in the ears, and a sterile abscess. If a child's blood pressure drops suddenly, the effect stops after 15–20 minutes. Dizziness, ringing in the ears and abscess are of minor importance in the treatment of a very severe disease. Use the table in TREAT chart to determine the dose. Use the child's weight, if the child can be weighed.

Procedures for Quinine Injections:

- QUININE: Dilute the quinine solution. Quinine may be packaged as a solution containing 300 mg per ml, in 2 ml ampoules. The 300 mg/ml solution should be diluted in the syringe. First, draw the dose indicated for the child from the quinine ampoule into a syringe. Then draw into the same syringe the amount of sterile water (diluent) specified in the box "Give Quinine for Severe Malaria" for the dose of quinine that you selected. For example, if the child weighs 12 kg, draw up 0.5 ml

  If you cannot weigh the child, use the age to determine the dose.

  Refer to table for Quinine Dosage page 16 of your chart booklet

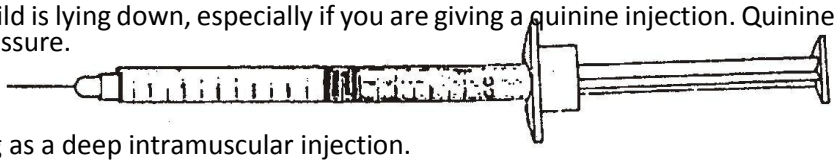
It is very important that the amount of quinine is measured accurately. Do not use syringe larger than 3 ml.

The dose is 10mg/kg. To reduce the risk of sterile abscess, dilute the quinine to a concentration of 60 mg/ml. the amount of diluent for each dose to obtain a concentration of 60mg/ml is shown in the box.

- *Quinine injections:* Use a syringe with fine gradations such as a small syringe.

Measure the dose accurately. Dilute according to the dose.

Make sure the child is lying down, especially if you are giving a quinine injection. Quinine may cause a sudden drop in blood pressure.



- Give the drug as a deep intramuscular injection.

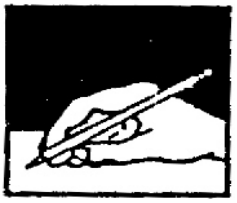
  NEVER give quinine as a rapid intravenous injection. This is extremely dangerous.

In some hospitals, quinine may be given in a slow intravenous infusion over 4 - 8 hours with special monitoring. Intramuscular quinine is more appropriate and safer than intravenous infusion in clinics and in many hospitals.

Refer the child urgently. The child should be carried. Keep the child lying down for one hour after a quinine injection.

H O W WILL YOU GIVE FIRST-LINE ORAL ANTIMALARIALS FOR MALARIA?

The oral antimalarials recommended in Pakistan are on your chart. It may be that only one antimalarial is available at your clinic. Refer to *TREAT THE CHILD* chart to determine the dose and schedule for an oral antimalarial, as you did with oral antibiotics.



EXERCISE E

In this exercise you will determine correct doses and practice measuring different dosages of drugs.

1. Practice determining correct doses.

What dose would you give the following children?

Child's Weight	If Quinine is needed (300 mg/ml)	Normal Saline diluent	Total diluted solution
5 kg	_____	_____	_____
7 kg	_____	_____	_____
13 kg	_____	_____	_____
18 kg	_____	_____	_____

2. What are the possible side effects of a quinine injection?

3. Waseem, a 12-month-old (10 kg) boy, was brought to the clinic this morning because he has had fever for 2 days and has been sleeping since yesterday.

A health worker assessed Waseem and found that he is unconscious. He classified Waseem as VERY SEVERE FEBRILE DISEASE and NO ANAEMIA AND NO ACUTE MALNUTRITION

The health worker will give Waseem an intramuscular antibiotic and quinine. He will also give him sugar water by nasogastric tube to prevent low blood sugar. Then the health worker will refer Waseem urgently to the nearest hospital

Specify the dose of each treatment that Waseem will receive.

Quinine: _____

Please inform the facilitator after completing the exercise

FEVER

HOW WILL YOU GIVE PARACETAMOL FOR HIGH FEVER (OVER 38.5^{0}C OR ABOVE)?

Paracetamol lowers a fever and reduces pain. If a child has high fever, regardless of the classification, give one dose of paracetamol in clinic. See the TREAT THE CHILD charts for doses.

TREAT MEASLES

HOW WILL YOU GIVE VITAMIN A TREATMENT?

Vitamin A is given to a child with MEASLES or SEVERE MALNUTRITION. Vitamin A is available in capsule and syrup. Use the child's age to determine the dose. Give 2 doses.

Vitamin A helps resist the measles virus infection in the eye as well as in the layer of cells that line the lung, gut, mouth and throat. It may also help the immune system to prevent other infections. Corneal clouding, a sign of vitamin A deficiency can progress to blindness if vitamin A is not given.

Give the first dose to the child in the clinic.

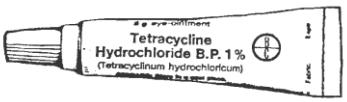
Give the second dose to the mother to give her child the next day at home. If the vitamin A in your clinic is in capsule form, make sure the child swallows it whole. If the child is not able to swallow a whole capsule or needs only part of the capsule, open the capsule. Tear off or cut across the nipple with a clean tool. If the vitamin A capsule does not have a nipple, pierce the capsule with a needle.

Record the date each time you give vitamin A to a child. This is important. If you give repeated doses of vitamin A in a short period of time, there is danger of an overdose.

HOW WILL YOU TREAT EYE INFECTIONS WITH TETRACYCLINE EYE OINTMENT?

If the child will be URGENTLY referred, clean the eye gently. Pull down the lower lid. Squirt the first dose of tetracycline eye ointment onto the lower eyelid.

If the child is not being referred, teach the caregiver to apply the tetracycline eye ointment. Refer to the TREAT THE CHILD chart and give the caregiver the following information.



The dose is about the size of a grain of rice

GIVE INFORMATION. Tell the caregiver:

✓ Treat both eyes to prevent damage to the eyes

✓ Wash her hands before and after treating the eye.

✓ Clean the child's eyes immediately before applying the tetracycline eye ointment.

✓ Use a clean cloth to wipe the eye. Dose size = grain of rice

✓ The ointment will slightly sting the child's eye

✓ Repeat the process (cleaning the eye and applying ointment) 3 times per day – in the morning, at mid-day and in the evening.

DEMONSTRATE how to treat the eye.

✓ Wash your hands

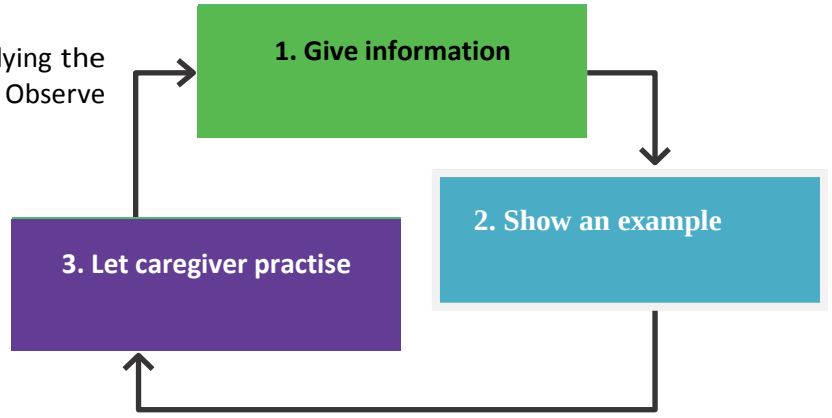
✓ Hold down the lower lid of your eye. Point to the lower lid. Tell the caregiver that this is where he/she should apply the ointment. Tell her to be careful that the tube does not touch the eye or lid.

✓ Have someone hold the child still.

✓ Wipe one of the child's eyes with the cloth. Squirt the ointment onto the lower lid. Make sure the caregiver sees where to apply the ointment and the correct dose (rice grain).

ASK CAREGIVER TO PRACTICE cleaning and applying the eye ointment into the child's other eye. Observe and give feedback as she practices.

When she is finished, give her the following additional information.



- Treat both eyes until the redness is gone from the infected eye. The infected eye is improving if there is less pus in the eye or the eyes are not stuck shut in the morning.
- Do not put any other eye ointments, drops or alternative treatments in the child's eyes. They may be harmful and damage the child's eyes. Putting harmful substances in the eye may cause blindness.
- After 2 days, if there is still pus in the eye, bring the child back to the clinic.

Then give the caregiver the tube of ointment to take home. Give her the same tube you used to treat the child in the clinic. Before the caregiver leaves, ask checking questions about treating the eye. For example, ask: *"Will you treat one or both eyes?" or "How much ointment you will put in the eye?"*

HOW WILL YOU TREAT MOUTH ULCERS WITH GENTIAN VIOLET?

Treating mouth ulcers controls infection and helps the child to eat. Teach the caregiver to treat mouth ulcers with half-strength gentian violet (0.25%), which should be used in the mouth, not full-strength (0.5%).

1. GIVE INFORMATION. Tell the caregiver:

✓ A child will start eating normally sooner if she paints the mouth ulcers in her child's mouth. It is important that the child eats.

✓ Clean the child's mouth. Wrap a clean soft cloth around her finger. Dip it in salt water. Wipe the mouth.

✓ Use a clean cloth or a cotton-tipped stick to paint gentian violet on the mouth ulcers. The gentian violet will kill germs that cause the ulcers. Put a small amount of gentian violet on the cloth or stick. Do not let the child drink the gentian violet.

✓ Treat the mouth ulcers 2 times per day, in the morning and evening.

✓ Treat the mouth ulcers for 5 days and then stop.

2. SHOW how to wrap a clean cloth around your finger, dip it into salt water, and wipe the child's mouth clean. Then paint half of the child's mouth with half- strength gentian violet.

As you have read, some treatments for local infections cause discomfort. The drawing on the right shows a good position for holding a child. Tilt the child's head back when applying eye ointment or treating mouth ulcers. Do not attempt to hold the child still until immediately before treatment.

3. ASK CAREGIVER TO PRACTICE. Watch her wipe the child's mouth clean and paint the rest of the ulcers with gentian violet. Comment on the steps she did well and those that need to be improved.

Give the caregiver a bottle of half-strength gentian violet to take home. Tell her to return in 2 days for follow-up. Also tell her that she should return to the clinic earlier if the mouth ulcers get worse or if the child is not able to drink or eat.

Before the caregiver leaves, ask checking questions. If she anticipates any problems providing the treatment, help her to solve them. For example, ask:

"What will you use to clean the child's mouth?"
"When will you wash your hands?"

"How often will you treat the child's mouth?"
"For how many days?"

TREAT DENGUE

NOTE: Do not give IPUBRUFEN and ASPIRIN

• Bleeding from the nose or gums • Bleeding in the stool or vomitus • Black stool or vomitus • Skin petechiae • Cold, clammy extremities • Slow capillary refill (more than 3 sec) • Persistent abdominal pain • Persistent vomiting • Positive torniquet test	**SEVERE DENGUE HEMORRHAGIV FEVER**	• **If skin petechiae, persistent abdominal pain, persistent vomiting, or positive tourniquet test are the only positive signs, give ORS** • **If any other sign of bleeding is positive, give fluids rapidly, as in PLAN C** • **Treat the child to prevent the lowering of his or her blood sugar level** • **Refer the child URGENTLY to a hospital** • **DO NOT GIVE ASPIRIN**
• No signs of severe dengue hemorrhagic fever	**FEVER: DENGUE HEMORRHAGIC FEVER UNLIKELY**	• Advise the mother regarding when to return immediately to the health center. • Follow up in 2 days if the fever persists or if the child shows signs of bleeding • **DO NOT GIVE ASPIRIN**

5.0 TREAT AN EAR PROBLEM

HOW WILL YOU TREAT AN EAR PROBLEM?

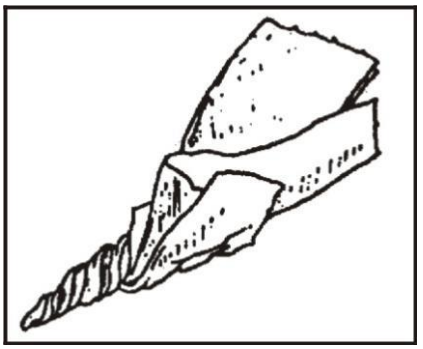
Refer to ear problem classification table. What treatments are identified in the TREATMENT column?

- **Teach the mother to wick the ear (Refer to table on the next page)**
- **Give recommended ear drops (Refer to table on the next page)**
- If required give paracetamol- according to the dosage in chart booklet
- If required give amoxicillin – according to the dosage in chart booklet

DRY THE EAR BY WICKING AND GIVE EAR DROPS

Dry the ear at least 3 times daily.

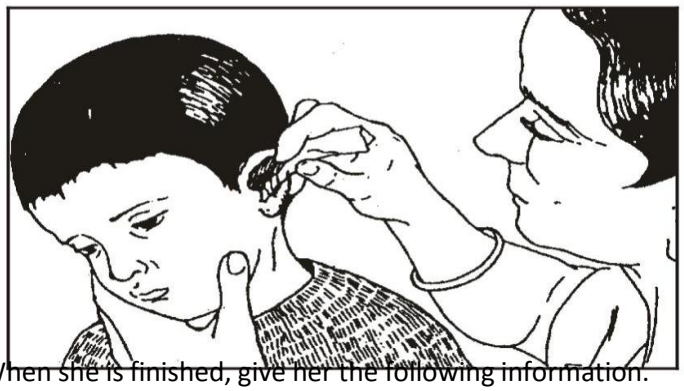
- Roll clean absorbent cloth or soft, strong tissue paper into a wick.
- Place the wick in the child's ear.
- Remove the wick when wet.
- Replace the wick with a clean one and repeat these steps until the ear is dry.
- Instill quinolone[3] eardrops after dry wicking three times daily for two weeks.



To teach a mother how to dry the ear by wicking, first **tell her** it is important to keep an infected ear dry to allow it to heal. Then **show** her how to wick her child's ear.

As you wick the child's ear, tell the mother to:

- Use clean, absorbent cotton cloth or soft strong tissue paper for making a wick. Do ***not*** use a cotton-tipped applicator, a stick or flimsy paper that will fall apart in the ear.
- Place the wick in the child's ear until the wick is wet.
- Replace the wet wick with a clean one.
- Repeat these steps until the wick stays dry. Then the ear is dry.



Observe the mother as she practices. Give feedback. When she is finished, give her the following information:

* Wick the ear 3 times daily.
* Use this treatment **for as many days as it takes** until the wick no longer gets wet when put in the ear and no pus drains from the ear.
* Do ***not*** place anything (oil, fluid, or other substance) in the ear between wicking treatments. Do ***not*** allow the child to go swimming. No water should get in the ear.

Ask checking questions, such as:

"What materials will you use to make the wick at home?" "What else will you put in your child's ear?"

"How many times per day will you dry the ear with a wick?"

If the mother thinks she will have problems wicking the ear, help her solve them.

[3] *Quinolone eardrops may include ciprofloxacin, norfloxacin, or ofloxacin*

6.0 TREAT MALNUTRITION

WHAT TREATMENTS ARE IDENTIFIED FOR MALNUTRITION?

Review your classification table for malnutrition. The following classification and treatment is to be used for children aged 6 months to 5 years. It identifies the following treatment:

* Give all children **oral antibiotics** for 5 days
* **Treat for low blood sugar** if child is being referred
* **Refer the child to hospital or Nutrition Stabilization Centres (if available)**

The treatments that you will read about now include:

* Give RUTF (if available) to children with UNCOMPLICATED SEVERE ACUTE MALNUTRITION (yellow) OR Refer to Outpatient Therapeutic Centre (if available).
* How to manage children with severe acute malnutrition **AND** dehydration, as dehydration should be managed differently when the child has malnutrition.

HOW WILL YOU GIVE RUTF?

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

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

Weight of the child (kg)	RUTF paste		RUTF Sachets[a] (500 Kcal sachets, or 92 g)	
	grams per day	grams per week	sachets per day	sachets per week
4.0–4.9	190	1300	2	14
5.0–6.9	230	1600	2½	18
7.0–8.4	280	1900	3	21
8.5–9.4	320	2300	3 ½	25
9.5–10.4	370	2600	4	28
10.5–14.9	400	2800	4½	32
15.0–19.9	450	3200	5	35
20.0–29.9	550	3900	6	40

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

HOW WILL YOU GUIDE THE CAREGIVER ABOUT GIVING RUTF?

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

- Wash hands before giving RUTF
- Sit with child on the lap and gently offer the RUTF

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

WHEN SHOULD THE CHILD RECEIVING RUTF RETURN FOR FOLLOW-UP?

A child with UNCOMPLICATED SEVERE MALNUTRITION should return for follow-up after 1 week. Advise the caregiver to return immediately if the child does not eat RUTF.

WHEN SHOULD THE CHILD STOP RUTF?

RUTF should be given until the weight-for-height is above **-2 z scores for 2 consecutive visits** OR there is **15% weight gain**. The child should be well and alert.

If the child presents with oedema, he will lose weight as the swelling goes down and he begins to improve. RUTF should not be stopped until the child has achieved weight gain as described above, AND the oedema has disappeared and been gone for at least two weeks.

RUTF is stopped after the child gains appropriate weight, AND there have been no signs of oedema for at least 2 week

TREAT ANAEMIA

WHAT TREATMENTS ARE IDENTIFIED FOR ANAEMIA?

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

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

HOW WILL YOU GIVE IRON?

A child with SOME PALMAR PALLOR may have anaemia. A child with anaemia needs iron. Give syrup to the child under 12 months of age. If the child is 12 months or older, give iron tablets. Iron should not be given if the child is also receiving RUTF for severe acute malnutrition, since there is adequate iron and folic acid in RUTF to treat mild anaemia and folate deficiency. **Remember to test all children for malaria**.

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

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

HOW WILL YOU GIVE MEBENDAZOLE?

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

Give 500 mg mebendazole as a single dose in the clinic. Give either one 500 mg tablet/100mg per 5 ml syrup or five 100 mg tablets. Refer to your Classification for Anaemia/TREAT charts.

IMMUNIZE EVERY SICK CHILD, AS NEEDED

This module assumes that you have already been trained to give immunizations. You can receive more detailed descriptions of how to give immunizations from the Expanded Programme on Immunizations, World Health Organization. The course, *Immunization in Practice: A Guide for Health Workers Who Give Vaccines*, trains health workers to give immunizations.

If you immunize children with the appropriate vaccine at the appropriate time, you prevent measles, polio, hepatitis, pneumonia, diphtheria, pertussis, tetanus and tuberculosis. Check the immunization status of every child you treat at your clinic. Immunize, as needed.

Review the following points about preparing and giving immunizations:

* If a child is well enough to go home, give him any immunizations he needs before he leaves the clinic.
* Use a sterile needle and a sterile syringe for each injection. This prevents transmission of HIV and the Hepatitis B virus.
* If only one child at the clinic needs an immunization, open a vial of the vaccine and give him the needed immunization.
* Discard opened vials of BCG and measles vaccines at the end of each immunization session. You may keep opened vials of OPV and DPT vaccines ***if***:
    - they are fitted with rubber stoppers,
    - the expiry date has not been passed, ***and***
    - the vaccine is clearly labelled and stored under proper cold chain conditions.

The OPV and Penta vials may be used in later immunization sessions until the vial is empty.

* Do ***not*** give OPV 0 to an infant who is more than 14 days old.
* Record all immunizations on the child's immunization card. Record the date you give each dose. Also keep a record of the child's immunizations in the immunization register or the child's chart, depending on what you use at your clinic.
* If a child has diarrhoea and needs OPV, give it to the child. Do ***not*** record the dose on the immunization record. Tell the mother to return in 4 weeks for an extra dose of OPV.
* When the child returns for the repeat dose, consider it to be the one that was due at the time of the diarrhoea. Record the date when the repeat dose is given on the immunization card and in your clinic's immunization register.

Tell the mother which immunizations her child will receive today. Tell her about the possible side effects. Below is a brief description of side effects from each vaccine.

* **BCG**: A small red tender swelling then an ulcer appears at the place of the immunization after about 2 weeks. The ulcer heals by itself and leaves a small scar.

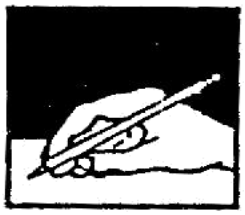
Tell the mother a small ulcer will occur and to leave the ulcer uncovered. If necessary, cover it with a dry dressing only.

* **OPV**: No side effects.
* **PENTAVALENT**: Fever, irritability and soreness are possible side effects after the injection. They are usually not serious and need no special treatment. Fever means that the vaccine is working.

Tell the mother that if the child feels very hot or is in pain, she should give paracetamol. She should ***not*** wrap the child up in more clothes than usual.

* **Measles**: Fever and a mild measles rash are possible side effects of the measles vaccine. A week after you give the vaccine, a child may have a fever for 1 - 3 days. Fever means that the vaccine is working.

Tell the mother to give paracetamol if the fever is high and return back if any danger sign appears.



EXERCISE F

In this exercise you will review checking the immunization status of several children. Answer the questions in the space provided.

1. Mala is 6 months old. She is brought to the clinic by her grandmother. The health worker classifies her as PNEUMONIA, MALARIA and NO ANAEMIA AND NO ACUTE MALNUTRITION. Her immunization card shows that it is time to give Mala a dose of Pentavalent 1 and OPV 1. Should Mala be given the immunizations today?

2. Health worker Parveen works at a busy clinic near a squatter's settlement. Food is scarce at the settlement. Many of the children brought to the clinic are classified as ANAEMIA OR MODERATE ACUTE MALNUTRITION.

   Should Parveen immunize children with ANAEMIA OR MODERATE ACUTE MALNUTRITION?

3. A 15-day-old infant is brought to the clinic. Health worker Alam finds that the infant did not receive OPV 0 at birth. Should Alam give the infant OPV 0 today?

4. A mother brings her 5-month-old daughter, Jannat, to the clinic because she has diarrhoea with blood in the stool. The health worker classifies Jannat as NO DEHYDRATION, DYSENTERY and NO ANAEMIA AND NO ACUTE MALNUTRITION. Jannat's immunization card shows she had OPV 2 and Pentavalent 2 five weeks ago.

a. Should the health worker give Jannat OPV 3 and Pentavalent 3 today?

The mother says that she does not want Jannat to be immunized again. She tells the health worker that Jannat had a fever and was irritable after the last time.

b. What should the health worker tell the mother about possible side effects of OPV and Pentavalent vaccines?

The mother agrees to let Jannat be immunized. The health worker gives Jannat the immunizations.

c. How should the health worker record the immunizations?

5. Health worker Hamid wants to immunize a 1-year-old child for measles. The child has been classified as PNEUMONIA and NO ANAEMIA AND NO ACUTE MALNUTRITION. The child's mother does not want her child to be immunized. She says that she will return for immunization when the child is better.

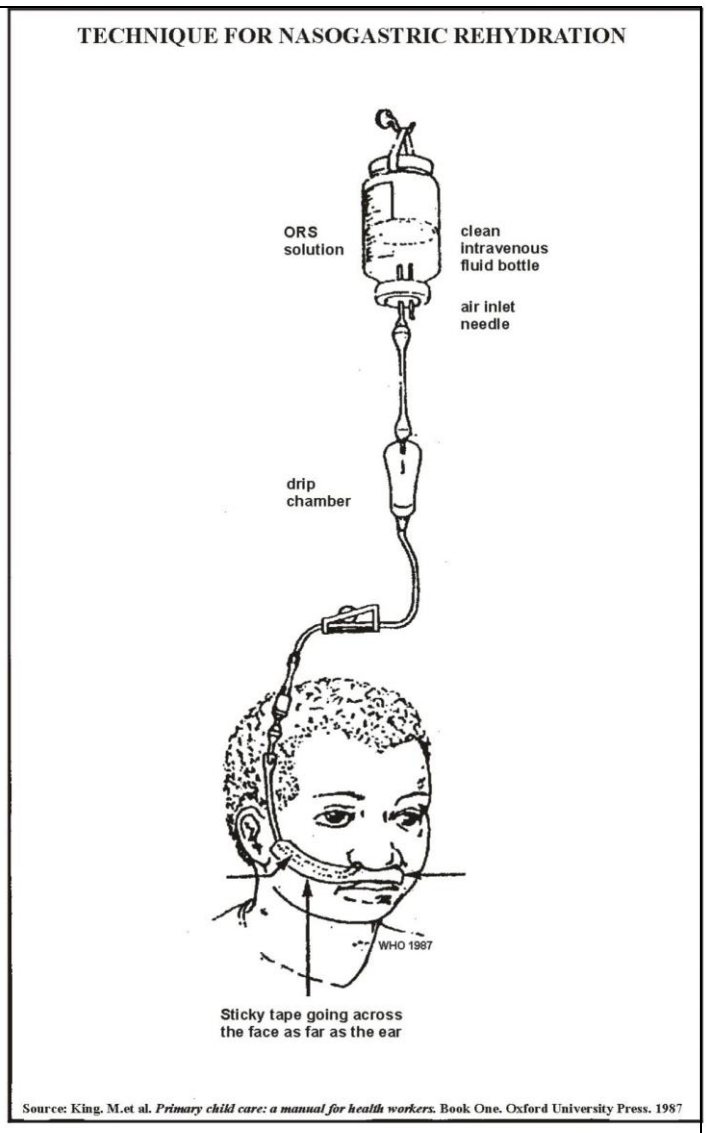
Describe what you would say to a child's mother to try to convince her to have her child immunized for measles today.

When you finish this exercise, discuss your answers with a facilitator.

ANNEXES

ANNEX A: NASOGASTRIC REHYDRATION

- Use a clean rubber or plastic nasogastric (NG) tube. Use a tube that is 2.0mm - 2.7mm in diameter for a child, or 4.0mm - 6.9mm for an adult.
- Place the patient on his or her back, with the head slightly raised. Older children and adults may prefer to sit up.
- Measure the length of tube to be swallowed by placing the tip just above the navel. Then stretch the tubing over the back of the ear and forward to the tip of the nose. Mark the tube with a piece of tape where it touches the end of the nose. This mark shows the length of tubing needed to reach from the tip of the nose to the stomach.
- Moisten the tube with a water-soluble lubricant or plain water; do ***not*** use oil.
- Pass the tube through the nostril with the largest opening. Gently advance it until the tip is in the back of the throat. Each time the patient swallows, advance the tube another 3.5cm. If the patient is awake, ask him or her to drink a little water.
- If the patient chokes, coughs repeatedly or has trouble breathing, the tube has probably passed into the trachea. Pull it back 2cm - 4cm until the coughing stops and the patient is comfortable. Wait a minute, and then try to insert the tube again.
- Advance the tube each time the patient swallows until the tape marker reaches the nose. If the patient is comfortable and not coughing, the tube should be in the stomach.



- Look into the patient's mouth to be certain that the tube is not coiled in the back of the throat. Confirm that the tube is in the stomach by attaching a syringe and withdrawing a little stomach fluid. You could also do this by placing a stethoscope just above the navel. Inject air into the tube with an empty syringe. Listen for the air entering the stomach.
- Fasten the tube to the face with tape and attach IV tubing that is connected to a clean IV bottle containing ORS solution. Regulate the infusion to a rate of 20 ml/kg per hour, or less.
- If an IV bottle is not available, a syringe (with the barrel removed) can be attached to the tube and used as a funnel. Hold the syringe above the patient's head and pour ORS solution into it at regular intervals.

ANNEX B: ORT CORNER

An ORT corner is an area in a health facility available for oral rehydration therapy (ORT). This area is needed because mothers and their children who need ORS solution will have to stay at the clinic for several hours.

When there are no diarrhoea patients using the ORT corner, the area can be used for treating other problems. Then the space is not wasted. When there are dehydrated patients, this conveniently located and adequately equipped ORT corner will help the staff to manage the patients easily.

The ORT corner should be:

* Located in an area where staff frequently pass by but not in a passageway. The staff can observe the child's progress and encourage the mother.
* Near a water source
* Near a toilet and washing facilities
* Pleasant and well-ventilated

The ORT corner should have the following furniture.

* Table for mixing ORS solution and holding supplies
* Shelves to hold supplies
* Bench or chairs with a back where the mother can sit comfortably while holding the child
* Small table where the mother can conveniently rest the cup of ORS solution

The ORT corner should have the following supplies. These supplies are for a clinic that receives 25-30 diarrhoea cases in a week.

* ORS packets (a supply of at least 300 packets per month)

* 6 bottles that will hold the correct amount of water for mixing the ORS packet, including some containers like those that mother will have at home

* 6 cups

* 6 spoons

* 2 droppers (may be easier to use than spoons for small infants)

* cards or pamphlets (such as a Mother's Card) that remind mothers how to care for a child with diarrhoea. A card is given to each mother to take home.

* Soap (for hand washing)

* Wastebasket

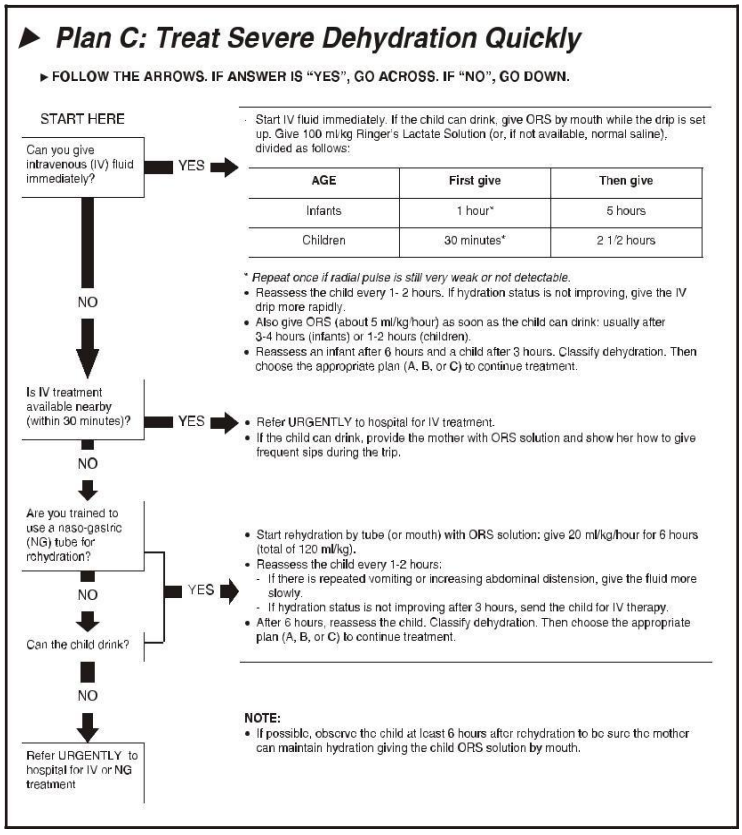
* Food available (so that children may be offered food or eat at regular meal times)

The ORT corner is a good place to display informative posters. Since mothers sit in the ORT corner for a long time, they will have a good opportunity to learn about health prevention from the posters.

Mothers are interested in posters about the treatment and prevention of diarrhoea and dehydration. The posters should contain information about ORT, use of clean water, breastfeeding, weaning foods, hand washing, the use of latrines, and when to take the child to the clinic. Other health messages should include information on immunizations.

Posters alone are not adequate for informing mothers. Health workers should also counsel mothers in person, using a Mother's Card if there is one available.

ANNEX C-1: IF YOU CAN GIVE INTRAVENOUS (IV) TREATMENT



Plan C: Treat Severe Dehydration Quickly

► FOLLOW THE ARROWS. IF ANSWER IS "YES", GO ACROSS. IF "NO", GO DOWN.

START HERE

Can you give intravenous (IV) fluid immediately? — YES →

- Start IV fluid immediately. If the child can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Ringer's Lactate Solution (or, if not available, normal saline), divided as follows:

AGE	First give	Then give
Infants	1 hour*	5 hours
Children	30 minutes*	2 1/2 hours

* *Repeat once if radial pulse is still very weak or not detectable.*

- Reassess the child every 1- 2 hours. If hydration status is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg/hour) as soon as the child can drink: usually after 3-4 hours (infants) or 1-2 hours (children).
- Reassess an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NO ↓

Is IV treatment available nearby (within 30 minutes)? — YES →

- Refer URGENTLY to hospital for IV treatment.
- If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip.

NO ↓

Are you trained to use a naso-gastric (NG) tube for rehydration? — YES →

- Start rehydration by tube (or mouth) with ORS solution: give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- Reassess the child every 1-2 hours:
  - If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.
  - If hydration status is not improving after 3 hours, send the child for IV therapy.
- After 6 hours, reassess the child. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NO ↓

Can the child drink? — YES →

NO ↓

Refer URGENTLY to hospital for IV or NG treatment

NOTE:

- If possible, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

If you can give IV treatment and you have acceptable solutions such as Ringer's Lactate or Normal Saline at your clinic, give the solution intravenously to the severely dehydrated child.

The sections of Plan C below describe the steps to rehydrate a child intravenously. It includes the amounts of IV fluid that should be given according to the age and weight of the child. Study the sections carefully.

- Start IV fluid immediately. If the child can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Ringer's Lactate Solution (or, if not available, normal saline), divided as follows:

AGE	First give	Then give
Infants	1 hour*	5 hours
Children	30 minutes*	2 1/2 hours

* *Repeat once if radial pulse is still very weak or not detectable.*

- Reassess the child every 1- 2 hours. If hydration status is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg/hour) as soon as the child can drink: usually after 3-4 hours (infants) or 1-2 hours (children).
- Reassess an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

- Refer URGENTLY to hospital for IV treatment.
- If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip.

This annex will not teach how to give intravenous treatment. Annex D includes a brief review of how to give IV fluids, solutions to use and the rate at which IV fluids should be given

Some of the terms in this part of Plan C may be new to you. Read the following to understand how the terms are used in Plan C.

* The DRIP refers to the IV equipment and solution.

  The "rate of the drip" refers to the number of drops per minute that the IV fluid is given.

  "While the drip is set up" means during the time you are preparing the IV equipment, IV fluid and you are putting the IV needle into the child's vein.

* HYDRATION STATUS refers to whether the child is normally hydrated or dehydrated and the extent of dehydration. A child classified as NO DEHYDRATION has not lost enough fluid to show signs of dehydration. A child classified as SOME DEHYDRATION or SEVERE DEHYDRATION has less than a normal amount of fluid in the body.

  To assess a child's hydration status, refer to the signs on the *ASSESS & CLASSIFY* chart.

* The RADIAL PULSE refers to the pulse felt over the radial artery. The radial artery is the main blood vessel at the wrist on the side of the thumb.

Provide IV Treatment for Severe Dehydration

When you provide IV therapy for SEVERE DEHYDRATION, you give the child a large quantity of fluids quickly. The fluids replace the body's very large fluid loss.

Begin IV treatment quickly in the amount specified in Plan C. If the child can drink, give ORS by mouth ntil the drip is running. Then give the first portion of the IV fluid (30 ml/kg) very rapidly (within 60 minutes for infants, within 30 minutes for children). This will restore the blood volume and prevent death from shock. Then give 70 ml/kg more slowly to complete rehydration.

During the IV treatment, assess the child every 1 - 2 hours. Determine if the child is receiving an adequate amount of IV fluid.

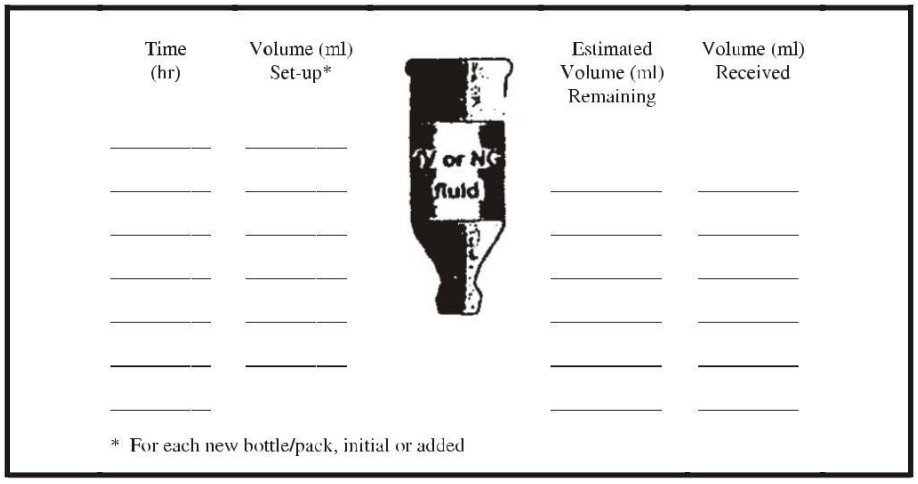
EXAMPLE

The following example describes how to treat a child with SEVERE DEHYDRATION if you can give IV treatment.

> A 6-month-old (9 kg) girl, Rida, was classified as SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. She was not able to drink but had no other disease classifications. IV treatment was available in the clinic. Therefore, the health worker decided to treat the infant with IV fluid according to Plan C.
>
> The health worker gave Rida 270 ml (30 ml x 9 kg) of Ringer's Lactate by IV during the first hour. Over the following five hours, he gave her 630 ml of IV fluid (70 ml x 9 kg), approximately 125 ml per hour. The health worker assessed the infant's hydration status every 1-2 hours (that is, he assessed for dehydration). Her hydration status was improving, so the health worker continued giving Rida the fluid at a steady rate.
>
> After 4 hours of IV treatment, Rida was able to drink. The health worker continued giving her IV fluid and began giving her approximately 45 ml of ORS solution to drink per hour.
>
> After Rida had been on IV fluid for 6 hours, the health worker reassessed her dehydration. She had improved and was reclassified as SOME DEHYDRATION. The health worker chose Plan B to continue treatment. The health worker stopped the IV fluid. He began giving Rida ORS solution as indicated on Plan B.

Monitor Amount of IV Fluid and the Child's Hydration Status

When rehydrating a child who has SEVERE DEHYDRATION, you have to monitor the amount of IV fluid that you give. You may use a form, similar to the following sample form.



Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
_____	_____			
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____

* For each new bottle/pack, initial or added

The form has 4 columns to record the amount of fluids given to a patient over a period of time.

1. **Time:** Record the times that you will check the IV fluid.

For an Infant:	**For a Child:**
(under 12 months)	(12 months up to 5 years)
* After the first hour	* After the first half hour (30 minutes)
* Every hour over the next 5 hours	* Every hour over the next 2/1-2 hours

2. **Volume Set-up:** As you start the IV fluid, record the amount of fluid in the bottle or pack. The amount should be listed on the container. Each time you replace the IV fluid with another container, be sure to record the amount on the appropriate line on the form at the time of replacement.

3. **Estimated Volume Remaining:** Check the IV fluid remaining in the container at the times listed. The remaining volume cannot be read precisely. Estimate it to the nearest 10 ml (for example - 220 ml, 230 ml, 240 ml, etc). Record the estimated amount on the form.

4. **Volume Received:** Calculate the amount of IV fluid received by the child at the times listed. To calculate, subtract the "Volume remaining" amount from the "Volume set-up" amount. The answer is the amount of IV fluid the child has received up to the time you are checking. Record that amount on the form.

It is helpful to mark the IV fluid container with a pen or tape to show the level that should be reached at a certain time. For example, mark the desired level to reach after the first 30 or 60 minutes, each hour, or at the end of 3 or 6 hours. This will help you adjust the rate of the drip correctly. Regulate the number of drops per minute to give the correct amount of fluid per hour.

The sample form below shows the amounts of IV fluid given to a 16-month-old (10 kg) child who is classified as having SEVERE DEHYDRATION. The health worker followed Plan C. He gave the child 300 ml (30 ml 10 kg) in the first 30 minutes. He gave 700 ml (70 ml 10 kg) over the next 2.5 hours (about 300 ml per hour).**Sample Fluid Form**

Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
	12:00 pm	1000 ml		
	12:30 pm		700 ml	300 ml
	01:30 pm		400 ml	600 ml
	02:30 pm		100 ml	900 ml
	03:00 pm		0 ml	1000 ml

* For each new bottle/pack, initial or added

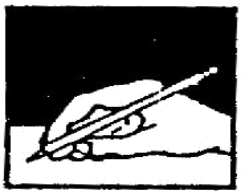
Make sure the IV fluid is given correctly and in adequate amounts. To monitor whether the fluid rate is adequate, reassess the child's dehydration every 1-2 hours. If the signs of dehydration and the diarrhoea are worse or not improved, increase both the rate you give the fluid and the amount of fluid that you give. Also increase the fluid rate if the child is vomiting. If the signs are improving, continue giving IV fluid at the same rate.

While giving IV fluid, remember to also give small sips of ORS solution to the child as soon as he can drink. Give the child approximately 5 ml of ORS solution per kilogram of body weight per hour.

Reassess Dehydration and Choose the Appropriate Treatment Plan

Assess the signs of dehydration in an infant after 6 hours and a child after 3 hours. Classify dehydration. Select the appropriate treatment plan (Plan A, B or C) to continue treatment.

After a child has been fully rehydrated and is classified as NO DEHYDRATION, keep the child at the clinic for 6 more hours if possible. During this time, the mother should give extra fluid according to Plan A. Watch to be sure that the mother can give enough fluid to fully replace all fluid lost while the diarrhoea continues. The child should also be fed. Check the child periodically to make sure that signs of dehydration do not return.



EXERCISE: ANNEX C-1

1. Badar is 3 years old and weighs 15 kg. His mother told the health worker that his diarrhoea started yesterday. The health worker assessed Badar and found that he is not able to drink and a skin pinch goes back very slowly. Badar is classified as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. The health worker can give IV treatment.

a. How should the health worker treat Badar's dehydration?

b. What amount of fluid should Badar be given?

c. The health worker monitors the IV fluid each half hour to be sure it is given at the rate he calculated. He also assesses Badar's dehydration each hour. After about 2 hours, Badar is more alert and can drink. What should be done now?

d. After Badar has completed 3 hours of IV treatment, what should the health worker do?

2. Amaru is 2 years old, weighs 8 kg. He has diarrhoea. A health worker determines that Amaru is lethargic, but able to drink. His eyes are sunken, and a skin pinch goes back very slowly. The health worker classifies Amaru as diarrhoea with SEVERE DEHYDRATION. He has a fever of 38.5C and a runny nose. His risk of malaria is high. The health worker also classifies him as VERY SEVERE FEBRILE DISEASE. He has ANAEMIA AND UNCOMPLICATED SEVERE ACUTE MALNUTRITION.

   The health worker can give IV fluid for Plan C. Should Amaru be urgently referred to a hospital? Why or why not?

3. Dano is 8 months old and weighs 6 kg. He is no longer breastfed. His mother brings him to a clinic because he has had diarrhoea for a week. The mother tells the health worker that there has been no blood in Dano's stools. The health worker sees that Dano's eyes are sunken. When encouraged, Dano is able to take a sip of water, but drinks poorly. A skin pinch goes back very slowly. The health worker, who can give IV treatment, finds Dano has diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION.

   a. How much IV fluid should be given to Dano in the first hour? How much over the next 5 hours?

   b. Should the health worker give Dano ORS solution? If so, how much?

c. Dano started receiving IV treatment at 1:00 pm from a 1000 ml bottle of IV fluid. The health worker checked Dano every hour. She recorded the amounts remaining in the bottle. See the fluid form. Calculate the amounts of IV fluid that Dano received and record them on the form.

Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
1:00 pm	1000 ml			
2:00 pm			820 ml	
3:00 pm			730 ml	
4:00 pm			640 ml	
5:00 pm			550 ml	
6:00 pm			470 ml	
7:00 pm			400 ml	

* For each new bottle/pack, initial or added

d. At 7:00 pm, the health worker reassesses Dano for dehydration. He had slept some. He is now awake, alert and drinking well though he does not seem thirsty. His eyes are sunken. The health worker pinched his skin and the pinch goes back immediately. How should the health worker classify Dano's dehydration?

What plan should be followed to continue treating Dano?

Is Dano ready to go home? Why or why not?

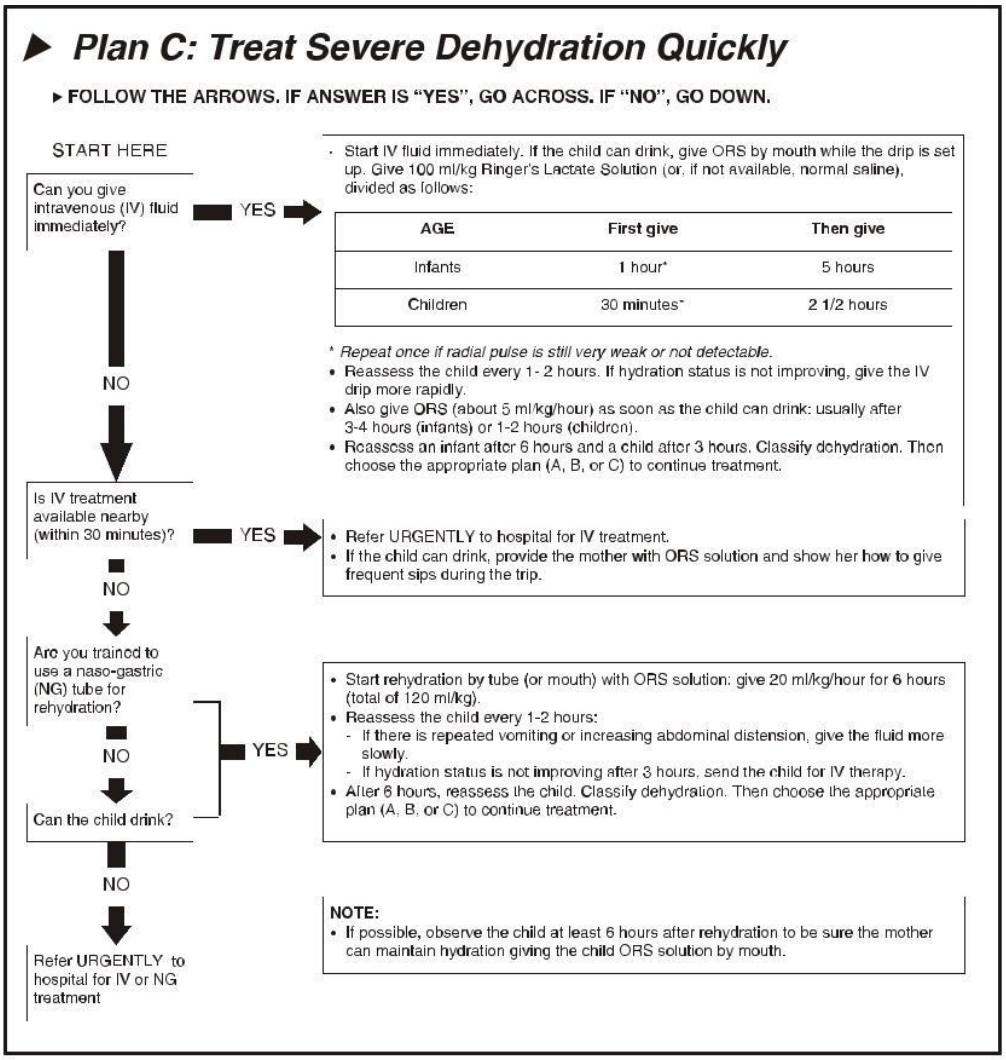
Ask a facilitator to check your answers. Then turn back to section 6.4 - Treat Persistent Diarrhoea and continue reading.

Your facilitator will lead a drill to practice

determining amounts and rates of IV fluid to give children on Plan C.

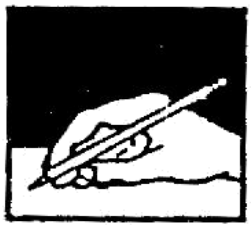
ANNEX C-2: IF IV TREATMENT IS AVAILABLE NEARBY

You are not able to provide IV treatment at your clinic. However, IV treatment is available at a clinic or hospital nearby (within 30 minutes).Read the Plan C section below that describes this situation.



- Refer URGENTLY to hospital for IV treatment.
- If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip.

Refer the severely dehydrated child immediately to the nearby facility. If the child can drink, show the mother how to give sips of ORS solution to the child. She should encourage her child to drink on the way to the facility.



EXERCISE: ANNEX C-2

1. Karim is 1 year old and weighs 10 kg. His mother brings him to a clinic because he has diarrhoea.

   The health worker determines that Karim has none of the general danger signs. She then finds that Karim is able to take small sips of ORS when encouraged, but is too tired and weak to drink well. Karim's eyes are sunken and a skin pinch goes back very slowly. The health worker finds Karim has SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. The health worker decides that Karim needs Plan C. The clinic does not have IV equipment. There is a hospital 15 minutes away where IV treatment is available.

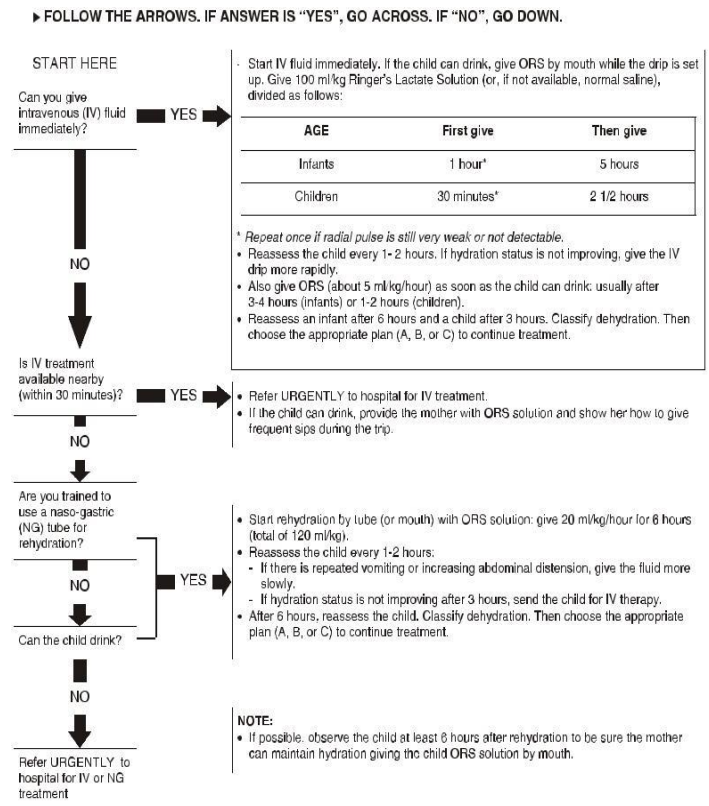
   a. How should the health worker treat Karim?

   b. What advice should the health worker give to his mother?

2. Jamal, a 9-month-old child, comes to the clinic with cough and diarrhoea. He is not able to drink. He is breathing 50 breaths per minute, but has no chest indrawing. Because of the general danger sign, he is classified as VERY SEVERE DISEASE. His eyes are sunken and a skin pinch goes back very slowly. He is also classified as SEVERE DEHYDRATION. He has no other disease classifications, and NO ANAEMIA AND NO ACUTE MALNUTRITION. IV treatment is not available. How should Jamal be treated?

Ask a facilitator to check your answers

ANNEX C-3: IF YOU ARE TRAINED TO USE A NASOGASTRIC (NG) TUBE[4]



You cannot give IV treatment at your clinic and there is no nearby clinic or hospital offering IV treatment. If you are trained to use an NG tube, rehydrate the child by giving ORS solution with an NG tube.

Read the sections of Plan C below. They describe the steps to rehydrate a child by NG tube.

- Start rehydration by tube (or mouth) with ORS solution: give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- Reassess the child every 1-2 hours:
  - If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.
  - If hydration status is not improving after 3 hours, send the child for IV therapy.
- After 6 hours, reassess the child. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NOTE:
- If possible, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

Some of the terms in this part of Plan C may be new to you. The following explanations will help you understand them.

* ABDOMINAL DISTENSION means the abdomen has increased in size. The skin is stretched.

* HYDRATION STATUS refers to whether the child is normally hydrated or dehydrated and the extent of dehydration. A child classified as NO DEHYDRATION has not lost enough fluid to show signs of dehydration. A child classified as SOME DEHYDRATION or SEVERE DEHYDRATION has less than a normal amount of fluid in the body.
To assess a child's hydration status, refer to the signs on the *ASSESS & CLASSIFY* chart.

[4] This annex will not teach you now to use an NG tube to give fluids. Annex A includes a brief review of nasogastric tube placement and rehydration for those who have previously been trained.

EXAMPLE

The following example describes how to treat a severely dehydrated child if you can give ORS solution by NG tube.

A 4-year-old (10 kg) boy, Saleem, was brought to a clinic with diarrhoea. The clinic did not offer IV treatment and no clinic nearby had IV treatment. NG treatment was available. Saleem was not able to drink. He had no other signs of disease. He was classified as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND

NO ACUTE MALNUTRITION.

Following Plan C, the health worker decided to give ORS solution to Saleem by NG tube. The health worker gave him 200 ml (20 ml 10 kg) over the next hour. The health worker checked Saleem every hour to make sure that he received 200 ml of ORS per hour. She also checked to make sure that the boy was not vomiting and that he did not have abdominal distension.

After 6 hours, Saleem had received 1200 ml of ORS solution by NG tube.

Monitor the Amount of NG Fluid and the Child's Hydration Status

When rehydrating a child who has SEVERE DEHYDRATION, you have to monitor the amount of NG fluid that you give over the 6-hour period. You may use a form, similar to the following sample fluid form.

Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
				

* For each new bottle/pack, initial or added

The form has 4 columns to record the amount of NG fluid given.

1. **Time:** Record the times that you will check the NG fluid. You will want to monitor the fluid every hour for 6 hours.

2. **Volume set-up:** When you begin to give NG fluids, record the amount of fluid in the container. Each time you replace the NG fluid container, record the amount on the appropriate line on the form at the time of replacement.

3. **Estimated Volume Remaining:** Check the IV fluid remaining in the container at the times listed. The remaining volume cannot be read precisely. Estimate it to the nearest 10 ml (for example - 220 ml, 230 ml, 240 ml, etc). Record the estimated amount on the form.

4. **Volume received:** Calculate the amount of NG fluid received by the child at the times listed. To calculate, subtract the "Volume remaining" amount from the "Volume set-up" amount. The answer is the amount of NG fluid the child has received up to the time you are checking. Record that amount on the form.

It is helpful to mark the container with a pen or tape to show the level that should be reached at a certain time. For example, mark the desired level to reach after the first 30 or 60 minutes, each hour, or at the end of 3 or 6 hours. This will help you adjust the rate of the drip correctly. Regulate the number of drops per minute to give the correct amount of fluid per hour.

EXAMPLE

The sample form below shows the amounts of NG fluid that Saleem received during the 6 hours he was treated at the clinic. The health worker gave him 200 ml of ORS solution by NG tube (that is, 20 ml /10 kg) beginning at 11:00 am.

Sample Fluid Form

Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
11:00 am	1000 ml			
12:00 pm			800 ml	200 ml
01:00 pm			600 ml	400 ml
02:00 pm			400 ml	600 ml
03:00 pm			200 ml	800 ml
04:00 pm	1000 ml		0 ml	1000 ml
05:00 pm			800 ml	1200 ml

* For each new bottle/pack, initial or added

Reassess the child every 1-2 hours:

* If the child is vomiting repeatedly or has increased abdominal distension, give the NG fluid more slowly.

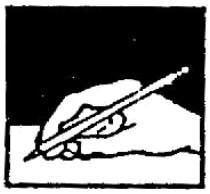
* If the child's dehydration is ***not*** improving after 3 hours, refer the child for I/V treatment.

* If the child is improving, continue to give the NG fluid for a total of 6 hours.

Reassess Dehydration and Choose the Appropriate Treatment Plan

After 6 hours of NG fluid, reassess the child for dehydration. Classify dehydration. Select the appropriate treatment plan (Plan A, B or C) to continue treatment.

After a child has been fully rehydrated and is classified as NO DEHYDRATION, keep the child at the clinic for 6 more hours if possible. During this time, the mother should give extra fluid according to Plan A. Watch to be sure that the mother can give enough fluid to fully replace all fluid lost while the diarrhoea continues. The child should also be fed. Check the child periodically to make sure that signs of dehydration do not return.



EXERCISE: ANNEX C-3

1. Raheel, an 18-month-old (8 kg) boy, is brought to the clinic with diarrhoea. The health worker does a complete assessment of the boy. Raheel is alert and the health worker finds that he can drink, but very poorly. A skin pinch goes back very slowly. The health worker classifies the child as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. The child needs fluid for SEVERE DEHYDRATION given according to Plan C. The nearest hospital offering IV treatment is 2 hours away. The health worker is trained to give nasogastric therapy.
   a. How should Raheel be rehydrated?

   b. How much ORS solution should Raheel be given per hour?

   c. After 1 hour, Raheel is vomiting repeatedly. What should the health worker do?

   d. After 3 hours, Raheel's signs of dehydration have not improved. Now what should the health worker do?

2. Sharifa is 9 months old and weighs 7 kg. Her mother brings her to the clinic because she has had diarrhoea for a week.

   The mother tells the health worker that Sharifa is no longer breastfed, and is too tired to drink from a cup. The health worker assesses Sharifa. He finds that she is lethargic, has sunken eyes, and a skin pinch goes back very slowly. The health worker classifies Sharifa as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION.

   The health worker decides to rehydrate Sharifa by NG tube according to Plan C. At 9:00 am, the health worker sets up 1000 ml of ORS solution.

   a. How much NG fluid per hour should the health worker give Sharifa?

b. For how long should the health worker give Sharifa NG therapy?

c. Fill out the sample form below as if you were setting up the NG fluid for Sharifa.

Time (hr)	Volume (ml) Set-up*		Estimated Volume (ml) Remaining	Volume (ml) Received
_____	_____			
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____	_____		_____	_____
_____			_____	_____

* For each new bottle/pack, initial or added

d. At 10:00, the health worker checks the fluid pack. There is 860 ml of fluid remaining. Record it on the form and calculate the volume received.

e. Every 1-2 hours the health worker monitors Sharifa. What should the health worker look for?

f. After 3 hours on NG fluid, Sharifa is improving. The health worker continues NG treatment. After 6 hours, the health worker reassesses Sharifa and finds her alert, her eyes are no longer sunken, and a skin pinch goes back immediately. When given a cup of clean water, Sharifa drinks it. How should Sharifa be classified now?

g. What should the health worker do next?

3. Jamal, a 9-month-old child, comes to the clinic with cough and diarrhoea. He is not able to drink. He is breathing more than 50 breaths per minute, but has no chest indrawing. Because of the general danger sign, he is classified as SEVERE PNEUMONIA OR VERY SEVERE DISEASE. His eyes are sunken and a skin pinch goes back very slowly. He is also classified as diarrhoea with SEVERE DEHYDRATION. He has no other disease classifications, and NO ANAEMIA AND
NO ACUTE MALNUTRITION.

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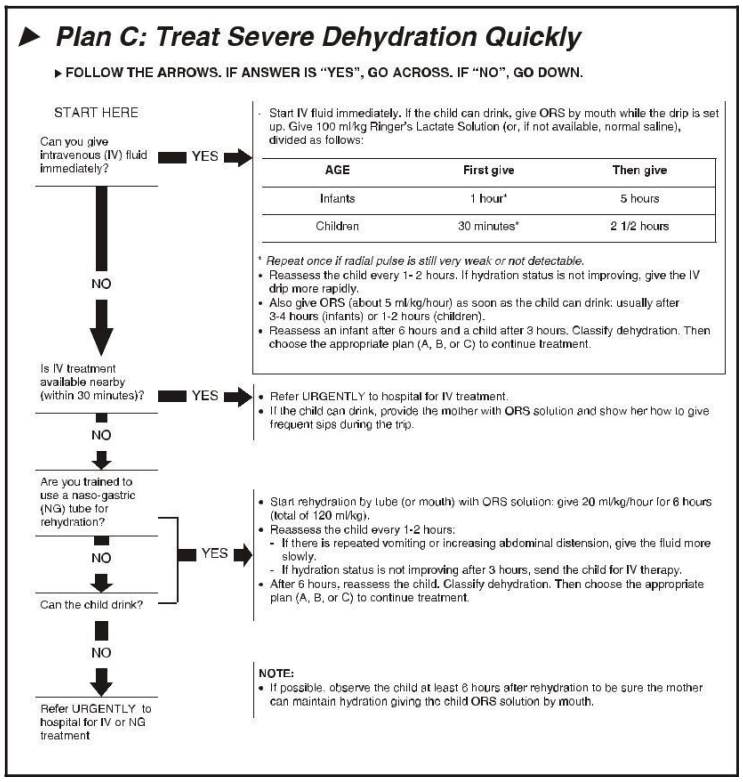
How should Jamal be treated?

Ask a facilitator to check your answers.

ANNEX C-4: IF YOU CAN ONLY GIVE PLAN C TREATMENT BY MOUTH



You cannot give IV fluids at your clinic. There is no clinic or hospital nearby that can give IV treatment. You are not able to use an NG tube for rehydration.

To learn how to give Plan C treatment by mouth, read the sections of Plan C below. Study the sections carefully.

- Start rehydration by tube (or mouth) with ORS solution: give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- Reassess the child every 1-2 hours:
  - If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.
  - If hydration status is not improving after 3 hours, send the child for IV therapy.
- After 6 hours, reassess the child. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NOTE:

- If possible, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

If a child with SEVERE DEHYDRATION comes to your clinic and you cannot give IV or NG treatment, find out if the child is able to drink.

- **If he is able to drink, you can try to rehydrate the child orally.**

- **If the child is not able to drink, you must refer him urgently to the nearest clinic or hospital where IV or NG treatment is available. If this child does not receive fluids, he will die.**

Some of the terms in this part of Plan C may be new to you. The following will help you understand them.

* ABDOMINAL DISTENSION means the abdomen has increased in size. The skin is stretched.

* HYDRATION STATUS refers to whether the child is normally hydrated or dehydrated and the extent of dehydration. A child classified as NO DEHYDRATION has not lost enough fluid to

show signs of dehydration. A child classified as SOME DEHYDRATION or SEVERE DEHYDRATION has less than a normal amount of fluid in the body.

To assess a child's hydration status, refer to the signs on the *ASSESS & CLASSIFY* chart.

Monitor the Amount of ORS

If you will rehydrate the child orally, you will have to monitor the amount of ORS solution you give him. Give 20 ml per kilogram of body weight per hour for a
6-hour period. After 6 hours, you will have given the child a total of 120 ml of ORS solution per kilogram of the child's weight.

Reassess the child's hydration status every 1-2 hours.

* If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.

* If the child's hydration status is ***not*** improving after 3 hours, refer the child for IV treatment.

EXAMPLE

Baratown Health Clinic does not give IV or NG therapy. The nearest hospital that can give IV or NG treatment is more than 2 hours away.

A 15-month-old (7 kg) girl, Ashi, was brought to Baratown Clinic by her mother. Ashi appeared to be sleeping but was able to take small sips of a drink when aroused. The health worker found that she had sunken eyes. A skin pinch went back very slowly. She was classified as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA

AND NO ACUTE MALNUTRITION.

The health worker decided to rehydrate Ashi by mouth according to Plan C. Since Ashi weighed 7 kg, the health worker calculated that she needed 140 ml of ORS solution per hour. The health worker showed Ashi's mother how much ORS to give in one hour.

Each hour during the next 6 hours, the health worker checked Ashi to make sure she was not vomiting and that her abdomen was not distended. The health worker also checked her hydration status. As Ashi began to improve, the health worker encouraged the mother to continue rehydrating Ashi.

Reassess Dehydration and Choose the Appropriate Treatment Plan

After 6 hours of taking ORS solution by mouth, reassess the child for dehydration. Classify dehydration. Select the appropriate treatment plan (Plan A, B or C), and continue treatment.

After the child is rehydrated, keep the child at the clinic for 6 more hours if possible. During this time, encourage the mother to give extra fluid according to Plan A. Watch to be sure that the mother can give enough fluid to fully replace all fluid lost while the diarrhoea continues. Check the child periodically to make sure that signs of dehydration do not return.

Remember:

If the child cannot drink, refer the child urgently to the nearest clinic or hospital for IV or NG treatment.

If this child does not receive fluids, he will die.

EXERCISE: ANNEX C-4

1. Jalib, a 2-year-old (12 kg) child, has diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION. He needs IV treatment, but your clinic does not have IV or NG therapy available. The nearest hospital is 1 hour away. You are able to give Jalib some sips of ORS solution.

   a. Should you refer Jalib urgently or try to rehydrate him by mouth?

   b. How much ORS solution should you give?

   c. Jalib vomits frequently. What should you do?

   d. After 3 hours you find Jalib is lethargic, has trouble drinking as he is very tired, has sunken eyes, and a skin pinch goes back very slowly. What should you do now?

2. Banti, a 15 kg boy, has diarrhoea. His father brings him to a neighbourhood clinic. The health worker finds Banti to be lethargic, a general danger sign. He also finds that Banti has sunken eyes and a skin pinch goes back very slowly. The health worker classifies him as having diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA AND NO ACUTE MALNUTRITION.

There is no IV or NG equipment at the clinic. The nearest hospital is over 2 hours away. The health worker encourages Banti to take some sips of ORS solution. The child drinks slowly.

a. How much ORS should the father encourage Banti to drink during the next hour?

After 3 hours, the health worker assesses Banti and finds him more alert and his hydration status improving. He continues to give Banti ORS solution for 3 more hours. Then the health worker reassesses Banti and reclassifies him as having SOME DEHYDRATION.

b. What should the health worker do now?

c. For how long should the health worker encourage Banti and his father to remain at the clinic? Why?

3. A grandmother brings her grandson, Lalo, to the clinic because she thinks Lalo is dying. She tells the health worker that Lalo has had diarrhoea for several days. The health worker cannot wake Lalo up. He determines that the child is unconscious. Lalo has sunken eyes and a skin pinch goes back very slowly. Lalo is classified as diarrhoea with SEVERE DEHYDRATION and NO ANAEMIA OR UNCOMPLICATED SEVERE ACUTE MALNUTRITION.

   The clinic has no IV or NG equipment.

   The health worker explains to the grandmother that Lalo needs fluids to stay alive. He tells her that the clinic cannot give Lalo the fluids that he needs. He explains that at the hospital there are doctors who can help Lalo, but the hospital is 2 hours away.

   What should the health worker do?

4. Jamal, a 9-month-old child, comes to the clinic with cough and diarrhoea. He is not able to drink. He is breathing more than 55 breaths per minute, but no chest indrawing. Because of the general danger sign, he is classified VERY SEVERE DISEASE. He is also classified as SEVERE PNEUMONIA OR VERY SEVERE DISEASE. His eyes are sunken and a skin pinch goes back very slowly. He is also classified as diarrhoea with SEVERE DEHYDRATION. He has no other disease classifications, and NO
   ANAEMIA AND NO ACUTE MALNURITION How should

   Jamal be treated?

ANNEX D: INTRAVENOUS TREATMENT FOR SEVERE DEHYDRATION

1. Technique of Administration

The technique of administration of intravenous (IV) fluids can only be taught through practical demonstration by someone with experience. Only trained persons should give IV treatment. Several general points are:

* The needles, tubing, bottles and fluid used for IV treatment must be **sterile**.
* IV treatment can be given into any convenient vein. The most accessible veins are generally those in front of the elbow or on the back of the hand. In infants, the most accessible veins are on the side of the scalp.

  Use of neck veins or incision to locate a vein are usually not necessary and should be avoided if possible.

  In cases requiring rapid resuscitation, a needle may be introduced into the femoral vein[5]. The needle must be held firmly in place and removed as soon as possible.

  In some cases of SEVERE DEHYDRATION, particularly in adults, infusion into two veins may be necessary. One infusion can be removed when the patient is becoming rehydrated.
* It is useful to mark IV bottles at various levels to show the times at which the fluid should fall to those levels. Regulate the number of drops per minute to give the correct amount of fluid per hour.

2. Solutions for Intravenous Infusion

Although a number of IV solutions are available, they all lack some of the electrolytes in the concentration needed by severely dehydrated patients. To ensure adequate electrolyte replacement, some ORS solution should be given as soon as the patient is able to drink, even while I/V treatment is being given. The following is a brief discussion of the relative suitability of several I/V solutions

Preferred Solution

Ringer's Lactate Solution, also called Hartmann's Solution for Injection, is the best commercially available solution. It supplies an adequate concentration of sodium and sufficient lactate, which is metabolised to bicarbonate, for the correction of acidosis.

Ringer's Lactate Solution can be used in all age groups for dehydration due to acute diarrhoea of all causes. Early provision of ORS solution and early resumption of feeding will provide the required amounts of potassium and glucose.

Acceptable Solutions

The following acceptable solutions may not provide adequate potassium, bicarbonate, and sodium to the patient. Therefore, give ORS solution by mouth as soon as the patient can drink.

Normal Saline, also called Isotonic or Physiological Saline, is often readily available. It will not correct the acidosis. It will not replace potassium losses. Sodium bicarbonate or sodium lactate and potassium chloride can be given at the same time. This requires careful calculations of amounts and monitoring is difficult.

Half-strength Darrow's Solution, also called Lactated Potassic Saline, contains less sodium chloride than is needed to efficiently correct the sodium deficit from severe dehydration.

Half Normal Saline in 5% Dextrose contains less sodium chloride than is needed for efficient correction of dehydration. Like Normal Saline, this will not correct acidosis nor replace potassium losses.

Unsuitable Solution

Plain Glucose and **Dextrose Solutions** should not be used. They provide only water and sugar. They do not contain electrolytes. They do not correct the electrolyte losses or the acidosis.

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[5] The femoral vein is the main vein from the leg. It is located just medial (towards the middle of the body) of the femoral artery. The femoral artery is the main artery to the leg. Its pulsation can be felt in the groin

ANNEX E: WHERE REFERRAL IS NOT POSSIBLE

The best possible treatment for a child with a very severe illness is usually at a hospital.

Sometimes referral is not possible or not advisable. Distances to a hospital might be too far; the hospital might not have adequate equipment or staff to care for the child; transportation might not be available. Sometimes parents refuse to take a child to a hospital, in spite of the health worker's effort to explain the need for it.

If referral is not possible, you should do whatever you can to help the family care for the child. To help reduce deaths in severely ill children who cannot be referred, you may need to arrange to have the child stay in or near the clinic where he may be seen several times a day. If not possible, arrange for visits at home.

This annex describes treatment to be given for specific severe disease classifications when the very sick child cannot be referred. It is divided into 2 parts: "Essential Care" and "Treatment Instructions: Recommendations on How to Give Specific Treatment for Severely Ill Children Who Cannot Be Referred".

To use the annex, first find the child's classifications and note the essential care required. Then refer to the boxes on the *TREAT THE CHILD* chart ***and*** the instructions in second half of the annex. Because it may be difficult to treat a child at specific times during the day in clinic or at home, the Treatment Instructions include 6-hour, 8-hour and 12-hour dosing schedules for giving various drugs.

Remember that you must also give treatment for the non-severe classifications that you identified. These treatments should be marked on the Sick Child Recording Form. For example, if the child has PNEUMONIA and MALARIA, you must treat the MALARIA ***and*** follow the guidelines below to treat the PNEUMONIA.

Although only a well-equipped hospital with trained staff can provide optimal care for a child with a very severe illness, following these guidelines may reduce mortality in high risk children where referral is not possible.

INDEX

ESSENTIAL CARE: CHILD AGE 2 MONTHS UP TO 5 YEARS

ESSENTIAL CARE: YOUNG INFANT LESS THEN 2 MONTHS

TREATMENT INSTRUCTIONS:

SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

Essential Care for SEVERE PNEUMONIA OR VERY SEVERE DISEASE

1. Give Antibiotic Treatment

It is essential that children with VERY SEVERE DISEASE receive antibiotic treatment.

If the child has a **general danger sign but does *not* have the classification VERY SEVERE FEBRILE DISEASE**, give IM Ampicillin & Gentamicin.

If IM Ampicillin & Gentamicin is not available, give IM Chloramphincol. If neither Treat with IM Ampicillin / Gentamicin until the child has improved.

Treat the child for 7 & 5 days respectively.

If the child also has the classification **VERY SEVERE FEBRILE DISEASE**, follow the essential care instructions for this classification below. Give

Ampicillin and Gentamicin and quinine.

2. Give a Bronchodilator[6]

If the child is wheezing, give rapid acting bronchodilator, if available. If rapid acting bronchodilator is not available, give bronchodilator.

3. Treat Fever If the child has an axillary temperature of 38.5C or above, give paracetamol every 6 hours. This is especially important for children with pneumonia because fever increases consumption of oxygen.

4. Manage Fluids Carefully

Children with PNEUMONIA or VERY SEVERE DISEASE can become overloaded with fluids. If they can drink, give fluids by mouth. However, children with PNEUMONIA or VERY SEVERE DISEASE often loose water during a respiratory infection, especially if there is fever. Therefore, give fluids, but give them cautiously.

Encourage the mother to continue breastfeeding if the child is not in respiratory distress. If the child is too ill to breastfeed but can swallow, have the mother express milk into a cup and slowly feed the child the breastmilk with a spoon.

Encourage the child to drink. If the child is not able to drink, either use a dropper to give the child fluid very slowly or drip fluid from a cup or a syringe without a needle. Avoid using a NG tube if the child is in respiratory distress. Wait until the next day if there is no other option.

FLUIDS IN PNEUMONIA VERY SEVERE DISEASE

AGE	Approximate amount of milk or formula to give:	Total amount in 24 hours:
Less than 12 months:	5 ml/kg/hour	120 ml/kg
12 months up to 5 years:	3 - 4 ml/kg/hour	72 - 96 ml/kg

[6] Instructions are provided in *Acute Respiratory Infection in Children: Case Management in Small Hospitals in Developing Countries, A manual for doctors and other senior health workers* (1990) WHO/ARI/90.5.

Avoid giving fluids intravenously **unless** the child is in shock. A child in shock has cold extremities, a weak and rapid pulse, and is lethargic.

5. Manage the Airway

Clear a blocked nose. A blocked nose can interfere with feeding. Use a plastic syringe (without needle) to gently suck any secretions from the nose. Dry or thick, sticky mucous can be loosened by wiping with a soft cloth moistened with salt water. Help the child to cough up secretions.

6. Keep the Infant Warm: Small infants lose heat rapidly, especially when wet. Feel the infant's hands and feet. They should be warm. To maintain the body temperature, keep the sick infant dry and well wrapped. If possible, have the mother keep her infant next to her body, ideally between her breasts. A hat or bonnet will prevent heat loss from the head. If possible, keep the room warm.

Essential Care for SEVERE PERSISTENT DIARRHOEA

1. Treat Dehydration Using the Appropriate Fluid Plan

2. Advise Mother How to Feed Child with Persistent Diarrhoea

See the box on the *COUNSEL THE MOTHER* chart. For infants less than 4 months, exclusive breastfeeding is very important. If the mother has stopped breastfeeding, help her relactate (or get help from someone who knows how to counsel on relactation).

3. Give Vitamins and Minerals

Give a multivitamin/mineral supplement every day for 2 weeks. Use a mixture containing a broad range of vitamins and minerals, including at least twice the recommended daily allowance of folate, vitamin A, zinc, magnesium and copper. If the child also has COMPLICATED SEVERE ACUTE MALNUTRITION, delay starting the multivitamin/mineral supplement until the child's appetite returns because the supplement contains iron. If a child has severe malnutrition and persistent diarrhoea, the treatment of severe malnutrition takes precedence over the treatment of persistent diarrhoea.

4. Identify and Treat Infection

Some children with PERSISTENT DIARRHOEA have infections such as pneumonia, sepsis, urinary tract infection, ear infection, dysentery, and amoebiasis. These require specific antibiotic treatment. If **no** specific infection is identified, do ***not*** give antibiotic treatment because routine treatment with antibiotics is not effective.

5. Monitor the Child

See the mother and the child each day. Monitor the child's feeding and treatments and the child's response. Ask what food the child eats and how much. Ask about the number of diarrhoeal stools. Check for signs of dehydration and fever.

Once the child is feeding well and has no signs of dehydration, see the child again in 2 to 3 days. If there are any signs of dehydration or problems with the changes in feeding, continue to see the child every day. Help the mother as much as possible.

Essential Care for VERY SEVERE FEBRILE DISEASE

1. Give Antibiotic and Antimalarial Treatment

A child with VERY SEVERE FEBRILE DISEASE needs treatment for both meningitis and severe malaria (in low or high risk malaria areas). Do ***not*** try to decide whether the child has meningitis or severe malaria. Treat for both possibilities.

For meningitis, give both IM Ampicillin ***and*** Gentamicin. It is preferable to give an injection every 6 hours. If this is not possible, use the 8-hour or the 12-hour dosing schedule (see Treatment Instructions).

Give both antibiotics by injection for at least 7 & 5 days respectively

For SEVERE MALARIA, give quinine. If you do not have quinine, give an oral antimalarial (if possible, the second- line oral antimalarial). In low risk malaria areas, do ***not*** give quinine to infants less than 4 months of age. It is very unlikely that they have malaria.

2. Manage Fluids Carefully

The fluid plan depends on the child's signs.

If the child also has **diarrhoea with SEVERE DEHYDRATION, but has no stiff neck and no SEVERE ACUTE MALNUTRITION OR SEVERE ANAEMIA**, give fluids according to Plan C.

The general danger sign which resulted in the classification VERY SEVERE FEBRILE DISEASE may have been due only to dehydration. Rehydrate, and then completely reassess and reclassify the child. The reassessment and reclassification of the child after rehydration may lead to a change in treatment plan if the child no longer is classified as VERY SEVERE FEBRILE DISEASE. If the child rapidly loses his danger signs with rehydration, do ***not*** continue treatment with quinine, Benzyl penicillin and chloramphenicol.

If the child has **VERY SEVERE FEBRILE DISEASE with a stiff neck or bulging fontanelle**, restrict fluids. The child may have meningitis. Be careful to restrict the amount of fluid as follows:

FLUIDS IF MENINGITIS SUSPECTED (stiff neck or bulging fontanelle

AGE	Approximate amount of milk or formula to give:	Total amount in 24 hours:
Less than 12 months:	3.3 ml/kg/hour	80 ml/kg/day
12 months up to 5 years:	2.5 ml/kg/hour	60 ml/kg/day

Avoid giving intravenous fluids.

If the child is vomiting everything or not able to drink or breastfeed, give fluid by NG tube.

If you do not know how to use an NG tube and the child is able to swallow, use a dropper to give the child fluid very slowly, or drip fluid from a cup or a syringe (without needle).

If the child has **SEVERE ACUTE MALNUTRITION**, give fluids as described under Essential Care for SEVERE ACUTE MALNUTRITION.

3. Treat the Child to Prevent Low Blood Sugar

See Treatment Instruction

Essential Care for SEVERE COMPLICATED MEASLES

1. Manage Measles Complications

Management depends on which complications are present.

If the child has **mouth ulcers**, apply half-strength (0.25%) gentian violet. Help the mother feed her child. If the child cannot swallow, feed the child by NG tube. Treat with IM chloramphenicol.

If the child has **corneal clouding**, be very gentle in examining the child's eye. Treat the eye with tetracyclines eye ointment carefully. Only pull down on the lower lid and do not apply pressure to the globe of the eye. Keep the eye patched gently with clean gauze.

Also treat **other complications of measles, such as pneumonia, diarrhoea, ear infection**

2. Give Vitamin A

Give 3 doses of vitamin A. Give the first dose on the first day and the second dose on day 2. Give the third dose in 1 month.

3. Feed the Child to Prevent Malnutrition

Essential Care for MASTOIDITIS

Give IM Ampicillin and IM Gentamicin. Treat for 7 days & 5 days respectively.

Switch to appropriate oral antibiotic to complete 10 days of treatment .

Essential Care for COMPLICATED SEVERE ACUTE MALNUTRITION

Children with COMPLICATED SEVERE ACUTE MALNUTRITION need specially prepared food with mineral supplements that are usually only available at a hospital or nutrition rehabilitation centre. Try to refer the child to one of these locations.

While you are waiting to refer the child:

1. **Give Antibiotic Treatment**

Give antibiotics even if the child does not have signs of infection. In SEVERE MALNUTRITION, the usual signs of infection are often absent. For example, fever may not be present. The severely malnourished child with PNEUMONIA may not breathe as fast as a well-nourished child and may not show lower chest wall indrawing. Therefore, it is important to treat all severely malnourished children with antibiotics when you first start to give special feeding

If the child has **no specific signs of infection**, give oral Amoxicillin for 5 days.

If the child has **a low temperature (less than 35.5C) or an elevated temperature (more than 37.5C), ear or skin infection, general danger signs, VERY SEVERE DISEASE, or VERY SEVERE FEBRILE DISEASE**, give IM Ampicillin and I/M gentamicin. Also treat for malaria in high risk malaria areas.

If the child does not improve within 48 hours, add IM chloramphenicol.

2. Continue Breastfeeding Frequently, Day and Night

3. Feed the Child

This child must be fed frequently, if necessary by NG tube. The choices of food depend on what is available.

First choice:

Give Ready-to-Use Therapeutic Food for SEVERE ACUTE MALNUTRITION

- Wash hands before giving the ready-to-use therapeutic food (RUTF).
- Sit with the child on the lap and gently offer the ready-to-use therapeutic food.
- Encourage the child to eat the RUTF without forced feeding.
- Give small, regular meals of RUTF and encourage the child to eat often 5–6 meals per day.
- If still breastfeeding, continue by offering breast milk first before every RUTF feed.
- Give only the RUTF for at least two weeks, if breastfeeding continue to breast and gradually introduce foods recommended for the age (See Feeding recommendations in *COUNSEL THE MOTHER* chart).
- When introducing recommended foods, ensure that the child completes his daily ration of RUTF before giving other foods.
- Offer plenty of clean water, to drink from a cup, when the child is eating the ready-to-use therapeutic food**.**

Recommended Amounts of Ready-to-Use Therapeutic Food

CHILD'S WEIGHT (kg)	**Packets per day** (92 g Packets Containing 500 kcal)	**Packets per Week Supply**
4.0-4.9 kg	2.0	14
5.0-6.9 kg	2.5	18
7.0-8.4 kg	3.0	21
8.5-9.4 kg	3.5	25
9.5-10.4 kg	4.0	28
10.5-11.9 kg	4.5	32
>12.0 kg	5.0	35

These modified milk feeds have reduced lactose. They can be given to a child with SEVERE MALNUTRITION who also has PERSISTENT DIARRHOEA.

The severely malnourished child is very fragile and needs small frequent feeds. Gradually increase the volume of the feed and gradually decrease the feeding frequency. Help the mother feed the child as often as possible. It is important that the child continue to receive as many feeds as possible at night (at least twice during the night). Many severely malnourished children die during the night when they are not fed and kept warm.

If the child has a good appetite and no oedema, you may only need to feed him for one day at each level.

Second choice: Give good complementary foods such as thick porridge, khichri, dalia with added oil. Avoid foods that contain too much lactose (that is, more than 40 ml whole milk/kg/day) or added salt. Do ***not*** add salt to the food.

Use the same feeding schedule as above.

Other alternative modified milk diets are unsweetened evaporated full-fat milk (120 ml and 100 g of sugar and 20 ml oil), fresh cow's milk (300 ml and 100 g sugar and 20 ml oil) or skimmed, unsweetened evaporated milk (120 ml and 100 g sugar and 30 ml oil). For all recipes, add warm, boiled water to make 1000 ml.

4. Replace Essential Minerals

Add 0.5 ml/kg of potassium chloride solution to each feed. Give 2 ml of 50% magnesium sulphate solution once by IM injection.

5. Give Iron When Child's Appetite Returns

If the child has anaemia, do ***not*** start iron treatment until the child's appetite returns. Before this, iron can make an infection worse.

6. Manage Diarrhoea with Dehydration Carefully

Children with SEVERE MALNUTRITION and diarrhoea with SOME or SEVERE DEHYDRATION may not be as dehydrated as the signs indicate. The slow skin pinch, sunken eyes, lethargy or irritability may be due to SEVERE ACUTE MALNUTRITION.

ORS solution contains too much salt and too little potassium for children with SEVERE ACUTE MALNUTRITION. Mix an ORS packet with **2** litres of water (instead of 1 litre of water). Then add 50 g of sugar (or 10 level teaspoons) and 45 ml of potassium chloride solution.[3] Mix carefully.

Rehydrate more slowly than normal. Monitor the child carefully. If the child's breathing rate and heart rate increase when he is being rehydrated, this may mean that too much fluid has been given too quickly. Stop giving the fluid. Resume giving fluid when the rates have slowed.

7. Monitor the Child's Temperature

Keep the child warm. Make sure the child is covered at all times, especially at night.

If the rectal temperature is below 35.5°C, place the infant on the mother's bare abdomen. Cover a child with a blanket or place a heater nearby. Make sure the child is clothed and wearing a hat or bonnet. It is especially important to feed this child every 2 hours until he is stable. Give IM antibiotics for possible sepsis.

50% magnesium sulfate solution has 4 mEq Mg^{++} per ml.

From stock solution containing 100 g KCl per litre.

Essential Care for SEVERE ANAEMIA

A child with severe anaemia is in danger of heart failure.

1. **Give Iron By Mouth**

2. **Give Antimalarial, If High Malaria Risk**
   Treat with an effective antimalarial. In areas with some resistance to the first-line oral antimalarial, give the second-line oral antimalarial.
   Also give mebendazole, if hookworm or whipworm is a problem in your area.

3. **Feed The Child**
   Give good complementary foods.

4. **Give Paracetamol If Fever Is Present**
   Give paracetamol every 6 hours.

5. **Give Fluids Carefully**
   Let the child drink according to his thirst. Do ***not*** give IV or NG fluids.

Essential Care for Convulsions (current convulsions, not by history during this illness)

1. **Manage the Airway**
   Turn the child on his side to reduce the risk of aspiration. Do ***not*** try to insert an oral airway or keep the mouth open with a spoon or spatula. Make sure that the child is able to breathe. If secretions are interfering with breathing, insert a catheter through the nose into the pharynx and clear the secretions with suction.

2. **Give Diazepam Followed by Paraldehyde**
   See Treatment Instructions.

3. **If High Fever Present, Lower the Fever**
   Give paracetamol and sponge the child with tepid water.

4. **Treat the Child to Prevent Low Blood Sugar**
   See Treatment Instructions.

SICK YOUNG INFANT LESS THAN 2 MONTHS

Essential Care for VERY SEVERE DISEASE

This young infant may have pneumonia, sepsis or meningitis.

1. GIVE IM BENZYL PENICILLIN AND IM GENTAMICIN

If meningitis is suspected (based on a bulging fontanelle, lethargic or unconscious, or convulsions), substitute IM ampicillin or Benzyl penicillin if it is available. Treat for 14 days total.

If meningitis is not suspected, treat for at least 5 days. Continue the treatment until the infant has been well for at least 3 days.

When the infant's condition has improved substantially, substitute an appropriate oral antibiotic such as amoxycillin for IM Benzyl penicillin or IM ampicillin. However, continue to give IM gentamicin until the minimum treatment has been given.

If there is no response to the treatment after 48 hours, or if the infant's condition deteriorates, then give chloramphenicol. Avoid chloramphenicol in premature infants.

2. Keep the Young Infant Warm (See instructions on page 121, item 6 and page 128, item 7.)

3. Manage Fluids Carefully

The mother should breastfeed the infant frequently. If the infant has difficulty breathing or is too sick to suckle, help the mother express breastmilk. Feed the expressed breastmilk to the infant by dropper (if able to swallow) or by NG tube 6 times per day. Give 20 ml of breastmilk per kilogram of body weight at each feed. Give a total of 120 ml/kg/day.

If the mother is not able to express breastmilk, prepare a breastmilk substitute or give diluted cow's milk with added sugar, as described in section 3.1 of the module *Counsel the Mother*.

4. Treat the Child to Prevent Low Blood Sugar

See Treatment Instructions.

Recommendations on How to Give Specific Treatments for Severely Ill Children Who Cannot Be Referred

Three dosing schedules for drugs are provided in this annex. The schedules are for every 6 hours (or four times per day), every 8 hours (or three times per day), and every 12 hours (or twice per day). **Choose the most frequent schedule that you are able to provide**. For IM gentamicin, the only options are twice and three times per day. If you are able to give Benzyl penicillin four times per day, then give the gentamicin twice per day (with every other dose of Benzyl penicillin).

Ideally, the treatment doses should be evenly spaced. Often this is not possible due to difficulty giving a dose during the night. Compromise as needed, spreading the doses as widely as possible.

Some treatments described below are impractical for a mother to give her child at home without frequent assistance from a health worker, for example, giving injections or giving frequent feedings as needed by a severely malnourished child. In some cases, a health worker may be willing to care for the child at or near his home or in the clinic to permit the frequent care necessary. In other cases, it is simply not practical to give the child the treatments that he needs.

Ampicillin

The first choice is to give IM Benzyl penicillin. IM ampicillin can be substituted for Benzyl penicillin.

If you are not able to give IM Benzyl penicillin or IM ampicillin, give oral amoxycillin.

Gentamicin -

Give IM gentamicin every 8 hours. If you are not able to give it every 8 hours, then give it every 12 hours.

If gentamicin is not available, give young infants with very severe disease Benzyl penicillin and chloramphenicol.

Chloramphenicol -

Give IM chloramphenicol for 5 days. Then switch to an oral antibiotic to complete 10 days of antibiotic treatment.

If you are not able to give IM antibiotic treatment, but oral chloramphenicol is available, give oral chloramphenicol by mouth or NG tube. Give every 6 hours, if possible.

Quinine -

► Give Quinine for Severe Malaria

FOR CHILDREN BEING REFERRED WITH VERY SEVERE FEBRILE DISEASE:

- ► Check which quinine formulation is available in your clinic.
- ► Give first dose of intramuscular quinine and refer child urgently to hospital.
- ► If low risk of malaria, do not give quinine to a child less than 4 months of age.

IF REFERRAL IS NOT POSSIBLE:

- ► Give first dose of intramuscular quinine.
- ► The child should remain lying down for one hour.
- ► Repeat the quinine injection at 4 and 8 hours later, and then every 12 hours until the child is able to take an oral antimalarial. Do not continue quinine injections for more than 1 week.
- ► If low risk of malaria, do not give quinine to a child less than 4 months of age.

AGE or WEIGHT	INTRAMUSCULAR QUININE(in 2 ml ampoules)					
	AMPOULES (150 mg/ml)			AMPOULES (300 mg/ml)		
	Draw up this dose of undiluted quinine in syringe	Add this amount of normal saline	Total diluted solution to administer (60 mg/ml)	Draw up this dose of undiluted quinine in syringe	Add this amount of normal saline	Total diluted solution to administer (60 mg/ml)
2 months up to 4 months (4 - < 6 kg)	0.4 ml	0.6 ml	1.0 ml	0.2 ml	0.8 ml	1.0 ml
4 months up to 12 months (6 - < 10 kg)	0.6 ml	0.9 ml	1.5 ml	0.3 ml	1.2 ml	1.5 ml
12 months up to 2 years (10 - < 12 kg)	0.8 ml	1.2 ml	2.0 ml	0.4 ml	1.6 ml	2.0 ml
2 years up to 3 years (12 - < 14 kg)	1.0 ml	1.5 ml	2.5 ml	0.5 ml	2.0 ml	2.5 ml
3 years up to 5 years (14 - 19 kg)	1.2 ml	1.8 ml	3.0 ml	0.6 ml	2.4 ml	3.0 ml

** quinine salt*

Give first dose of quinine. Repeat the IM quinine injection at 4 and 8 hours later. These 3 injections are the loading dose.

Then either give quinine (the same dose as above) every 12 hours or give quinine every 8 hours (using the 8-hour dosing schedule). Stop the IM quinine when the child is able to take an oral antimalarial.

The injections of quinine should not continue for more than 1 week. Too high of a dosage can cause deafness and blindness, as well as irregular heartbeat (which may cause to cardiac arrest).

The child should remain lying down for one hour after each injection as the child's blood pressure may drop. The effect stops after 15 - 20 minutes.

When the child can take an oral antimalarial, give a full dose according to national guidelines for completing the treatment of severe malaria. In most countries, the oral antimalarial recommended is sulfadoxine-pyrimethamine.

If the malaria risk is low, do ***not*** give quinine to a child less than 4 months of age.

DOSING SCHEDULE - INTRAMUSCULAR AND ORAL DRUGS: EVERY 6 HOURS (or 4 time per day)

AGE or WEIGHT	IM CHLORAMPHENICOL Dose: 20 mg/kg To vial containing 100 mg. add 0.5ml Sterile water = 5.6 ml at 180 mg/ml	BENZYLPENICILLIN Dose : 50 000 units/kg To vial containing 600 mg (or 1 000 000 units.)		ORAL CHLORAMPHENICOL Dose : 20units/kg	
		Add 2.1 ml sterile water = 2.5 ml at 400 000 units/ml	Add 3.6 ml sterile water= 4.0 ml at 250 000 units/ml	SYRUP 125 mg/ 5ml Suspension (palmitale)	CAPULE 250 mg
1 kg		0.1 ml	0.2 ml		
2 kg	0.2 ml	0.2 ml	0.4 ml	1.5 ml (1/4 tsp)	¼
3 kg	0.3 ml	0.4 ml	0.6ml	2.5 ml (1/2 tsp)	¼
4 kg	0.4 ml	0.5 ml	0.8ml	3.0 ml (1/2 tsp)	¼
5kg	0.5 ml	0.6 ml	1.0 ml	4.0 ml ¾ tsp)	½
4 months up to 9 months (6 - <8 kg)	0.8 ml	0.8 ml	1.5 ml	5.0 ml (1 tsp)	½
9 months up to 12 months (8 - < 10 kg)	1.0 ml	1.2 ml	2.0 ml	7.5 ml (1 ½ tsp)	¾
12 months up to 3 years (10 - < 14 kg)	1.2 ml	1.5 ml	2.5 ml	10.0 ml (2 tsp)	1
3 years up to 5 years (14 – 19 kg)	1.8 ml	2.0 ml	3.5 2.0 ml	12.5 ml (½ tsp)	1

DOSING SCHEDULE - INTRAMUSCULAR AND ORAL DRUGS: EVERY 8 HOURS (or 3 time per day)

AGE or WEIGHT	CHLORAMPHENICOL Dose: 30 mg /kg To vial containing 1000mg add 5.0 ml of sterile water= 5.6 ml at 180 mg/ml	BENZYLPENCILLIN Dose: 70000 IU/kg To vial containing 600mg or 1000000 units)		GENTAMICIN (10mg/ml solution) Dose: 2.5 mg/kg	QUININE Dose 10mg/kg		
		Add 2.1 ml sterile water = 2.5 ml at 400000 units/ml	Add 3.4 ml sterile water = 4.0 ml at 250000 units /ml		Quinin 300 mg/ml	Diluent	Total diluted solution
1 kg		0.2 ml	0.3 ml	0.25 ml	0.03 ml	0.12ml	0.15 ml
2 kg	0.3 ml	0.3 ml	0.6 ml	0.50 ml	0.07 ml	0.3 ml	0.37 ml
3 kg	0.5 ml	0.5 ml	0.8 ml	0.75 ml	0.1 ml	0.4 ml	0.5 ml
4 kg	0.7 ml	0.7 ml	1.1 ml	1.0 ml	1.2 ml	1.8 ml	1.0 ml
5kg	0.8 ml	1.9 ml	1.4 ml	1.25 ml	0.2 ml	0.8 ml	1.0 ml
4 months up to 9 months (6 - <8 kg)	1.2 ml	1.2 ml	2.0 ml	1.8 ml	0.3 ml	1.2 ml	1.5 ml
9 months up to 12 months (8 - <10 kg)	1.5 ml	1.6 ml	2.5 ml	2.2 ml	0.3 ml	1.2 ml	1.5 ml
12 months up to 3 years (10 - <14 kg)	2.0 ml	2.0 ml	3.5 ml	3.0 ml	0.4 ml	1.6 ml	2.0 ml
3 years up to 3 years (14 - 19 kg)	2.5 ml	3.0 ml	4.5 ml	4.0 ml	0.6 ml	2.4 ml	3.0 ml

DOSING SCHEDULE - INTRAMUSCULAR and ORAL DRUGS: EVERY 12 HOURS (or 2 time per day)

AGE or WEIGHT	IM CHLORAMPHENICOL Dose: 40 mg/kg To vial containing 100mg add 5.0ml of sterile water= 5.6 ml at 180 mg/ml	BENZYLPENICILLIN Dose: 100 000 units/kg To vial containing 600mg (or 1000000 units)		GENTAMICIN (10 mg/ml solution) Dose: 3.0 mg/kg	ORAL CHLORAMPHENICOL Dose: 40 mg/kg	
		add 2.1 ml of sterile water=2.5 ml at 400000 units/ml	add 3.6 ml of sterile water=4.0 ml at 250000 units/ml		SYRUP – 125 mg/5 ml suspension (palmitate)	CAPSULE 250 mg
1 kg	-	0.2 ml	0.4 ml	0.3 ml	-	-
2 kg	0.5 ml	0.4 ml	0.8 ml	0.6 ml	3.0 ml (1/2 TSF)	½
3 kg	0.7 ml	0.8 ml	1.2 ml	0.9 ml	5.0 ml (1TSF)	½
4 kg	0.9 ml	1.0 ml	1.6 ml	1.2 ml	6.0 ml (1 ¼ TSF)	½
5kg	1.1 ml	1.2 ml	2.0 ml	1.5 ml	8.0 ml (1 ½ TSF)	1
4 months up to 9 months (6 - <8 kg)	1.5 ml	1.8 ml	3.0 ml	2.0 ml	10.0 ml (2TSF)	1
9 months up to 12 months (8 - <10 kg)	2.0 ml	2.5 ml	4.0 ml	2.8 ml	15.0 ml (3TSF)	1
12 months up to 3 years (10 - <14 kg)	2.5 ml	3.0 ml	5.0 ml	3.5 ml	20.0 ml (4TSF)	2
3 years up to 5 years (14 - <19 kg)	3.5 ml	4.0 ml	6.0 ml	5.0 ml	25.0 ml (5TSF)	3

NOTE: see the quinine box on page 16 of chart booklet

Treat the Child to Prevent Low Blood Sugar -

If the child is conscious, follow the instructions on the *TREAT* chart. Feed the child frequently, every 2 hours, if possible.

If the child is unconscious and you have dextrose solution and facilities for an intravenous (IV) infusion, start the IV infusion. Once you are sure that the IV is running well, give 5 ml/kg of 10 % dextrose solution (D10) over a few minutes, or give 1 ml/kg of 50% dextrose solution (D50) by very slow push. Then insert an NG tube and begin feeding every 2 hours.

Potassium Chloride Solution (100 grams KCl per litre) -

Give 0.5 ml (or 10 drops from a dropper) per kilogram of body weight with each feed. Mix well into the feed.

Diazepam and paraldehyde (anticonvulsants) -

Give by rectum.

Use a tuberculin syringe or the smallest available without a needle. Put the diazepam or paraldehyde in the syringe. Gently insert the syringe into the rectum. Squirt the diazepam or paraldehyde. Keep the buttocks squeezed tight to prevent loss of the drug.

If both diazepam and paraldehyde are available, use the following schedule:

1. Give **diazepam**.
2. In 10 minutes, if convulsions continue, give **diazepam** again.
3. In 10 more minutes (that is, 20 minutes after the first dose), if convulsions continue, give **paraldehyde**.
4. In 10 more minutes (that is, 30 minutes after the first dose), if convulsions continue, give **paraldehyde** again.

This is the preferred treatment. It is safer than giving 3 doses of diazepam in a row due to the danger of respiratory depression.

If only diazepam is available, use the following schedule:

1. Give **diazepam**.
2. In 10 minutes, if convulsions continue, give **diazepam** again.
3. In 10 more minutes (that is, 20 minutes after the first dose), if convulsions continue and the child is breathing well, give **diazepam** again. Watch closely for respiratory depression.

If only paraldehyde is available, use the following schedule:

1. Give **paraldehyde**.
2. In 10 minutes, if convulsions continue, give **paraldehyde** again.
3. In 10 more minutes (that is, 20 minutes after the first dose), if convulsions continue, give **paraldehyde** again.

DOSAGE TABLE - DIAZEPAM and PARALDEHYDE

AGE or WEIGHT	DIAZEPAMGIVEN RACTALLY (10 mg = 2 ml) Dose: 0.5 mg/kg	PARALDEHYDE GIVEN RACTALLY (1 g = 1 ml) Dose: 0.15 - 0.3 ml/kg
Less then 7 days (if weight <2.5 kg)	0.25 ml	--
Less then 7 days (if weight >2.5 kg)	0.5 ml	--
7 days up to 4 months (3-< 6 kg)	0.5 ml	1.0 ml
4 months up to 12 months (6 - <10 kg)	1.0 ml	1.5 ml
12 months up to 3 years (10 - <14 kg)	1.25 ml	2.0 ml
3 years up to 5 years (14 - 19 kg)	1.5 ml	3.0 ml

EXAMPLE

Meena is 18 months old. She became sick a week ago. She developed fever, lost her appetite and began to cough. This is the rainy season, and the risk of malaria is high.

Meena's mother bought some chloroquine 3 days ago and has given Meena a whole tablet each day. Still Meena has a fever and now is very sleepy. When her mother makes her eat, Meena cries weakly. For the last few days, the mother has been afraid to feed Meena because she is so sleepy and seems to have trouble swallowing. The mother is afraid the child will choke on the food. Meena stopped breastfeeding 4 months ago when her mother became pregnant.

Meena's assessment shows the following:

Her axillary temperature is 39C. She weighs 8 kg. She is very lethargic, waking only for a few seconds before falling asleep again. She has not had convulsions. She is not able to drink now because she is so lethargic. Her breathing rate is 52 beats per minute. She has intercostal indrawing but no lower chest wall indrawing and no stridor. She does not have diarrhoea.

The health worker does not think Meena's neck is stiff. She has no runny nose and no rash. Meena does not have an ear problem.

Meena is thin but does not have visible wasting. She has some palmar pallor. When you press on her feet, there is no oedema. Meena is up to date on her immunizations.

The health worker classifies Meena as VERY SEVERE DISEASE, VERY SEVERE FEBRILE DISEASE and ANAEMIA.

The nearest hospital is a day's journey away and the mother cannot go there. Her husband is away and she must care for her other children. She also does not think that there are drugs at the hospital and she has no money to pay for her food there.

Meena cannot be referred. She can stay with her mother at the house of an aunt who lives near the clinic. The mother will bring the child for injections. One of the nurses in the clinic is willing to come to the aunt's house to help care for Meena in the evening.

It is now 9 am and the clinic is open until lunch. The health worker will conduct a special session for follow-up and nutrition counselling from 3 pm to 4 pm today. The clinic is open during the same hours tomorrow.

The health worker decides that it will be possible to give injections approximately every 8 hours. He will give the first injection now (9 am) and the second at 4 pm as the clinic is closing. The third injection will be given to Meena in the late evening when the nurse visits Meena at the aunt's house.

The health worker immediately gives the following treatments:

1. **Benzyl penicillin** - 1 000 000 units with 2.1 ml of sterile water added to get 2.5 ml at 400 000 units/ml:

   The health worker gives Meena 1.6 ml by intramuscular injection, based on the 8-hour dosing schedule. This same dose will be given to Meena approximately every 8 hours.

2. **Chloramphenicol** 1000 mg vial with 5 ml of sterile water added to get 5.6 ml at 180 mg/ml: The health worker gives Meena 1.5 ml by intramuscular injection, based on the 8-hour dosing schedule. This same dose will be given to Meena approximately every 8 hours.

3. **Quinine**: The health worker gives Meena the initial dose of 0.3 ml of 300 mg/ml plus 1.2 ml diluent = 1.5 ml solution of 60mg/ml. The same dose is given 4 and 8 hours later. Then the health worker will continue to give Meena 0.6 ml every 8 hours until she is able to take oral antimalarial.
4. **Sugar Water**: The health worker gives Meena 50 ml of sugar water by NG tube.

The health worker sends for whole, undiluted cow's milk. He crushes a 100 mg paracetamol tablet to mix with the milk. He gives Meena 30 ml of the milk by NG tube every hour during the rest of clinic. To the first 30 ml, he adds the paracetamol. He repeats the dose in 6 hours.

The health worker asks the mother to hold Meena to keep her warm. The mother also adjusts Meena's hat and blanket so she is covered.

When the nurse visits Meena at her aunt's home in the evening, she slowly gives her 100 ml of the milk by NG tube. The nurse does not give more than 100 ml because she is worried that Meena may vomit if given more. The same amount is given when the clinic opens the next morning. At that time, Meena is more alert and able to swallow the fluids that are dripped into her mouth. The health worker gives the mother a 10 ml syringe so that she can feed her child this way. The health worker tells the mother to try to give Meena 3 syringe-fulls of milk every hour.

Because Meena is so sick and cannot swallow, the non-urgent treatments, iron and pyrantel pomoate, are not given now.

After 4 days of treatment, Meena is alert and her fever is gone. She is able to take sips from a cup. Because she was already treated with chloroquine, the health worker decides to give sulfadoxine-pyrimethamine (½ tablet, crushed) when stopping the quinine injections. He also gives pyrantel pomoate 125 mg (1 tablet crushed).

Because the health worker is uncertain whether the VERY SEVERE FEBRILE DISEASE was meningitis or severe malaria, he wants to be sure that all possibilities are adequately treated but needs to stop giving these frequent injections. Therefore, he stops the IM chloramphenicol and Benzyl penicillin and gives oral chloramphenicol (¾ tablet every 6 hours). He gives this for 6 more days to complete 10 days of treatment.

The health worker continues to see Meena every day for a few more days. He wants to make sure that she continues to improve and begins eating, and that the mother is able to give the chloramphenicol 4 times per day.

The health worker now reviews with the mother how Meena was fed before this illness. He advises the mother that the child should receive good complementary foods or family foods at least 5 times per day. Because he does not want to confuse the mother with too many pills, the health worker decides not to start the iron treatment until Meena finishes the full 10 days of antibiotic treatment.

When Meena and her mother return, the health worker gives the mother a bottle of iron syrup and shows her how to measure ¼ teaspoon. He also shows her how to give it to Meena. He tells the mother to give ¼ teaspoon to Meena every morning. He also tells the mother to make sure the syrup is kept out of reach of Meena and her siblings. Then he arranges to see Meena again in 2 weeks when he will check on her pallor and give the mother more iron syrup.

ANNEX F: USE OF PULSE OXIMETRY AND OXYGEN THERAPY

While assessing the sick child for signs and symptoms to classify them, the Pulse Oximeter helps in measuring the oxygen saturation in all children who have fast breathing or chest indrawing. Normal oxygen saturation at sea level in a child is 95–100%; in children with severe pneumonia, this usually decreases. Oxygen should be given if saturation drops to < 90% (measured at room air). Different cut-offs might be used at altitude or if oxygen is scarce. The response to oxygen therapy can also be measured with a pulse oximeter, as the oxygen saturation should increase if the child has lung disease (with cyanotic heart disease, oxygen saturation does not change when oxygen is given). The oxygen flow can be titrated with the pulse oximeter to obtain a stable oxygen saturation > 90% without wasting too much oxygen.

Table 1:Recommendations for Detecting Hypoxemia
(Oxygen Therapy for Children: a manual for health workers WHO)

RECOMMENDATIONS FOR DETECTING HYPOXAEMIA

	RECOMMENDATION	QUALITY OF EVIDENCE
1.	**Use pulse oximetry to detect hypoxaemia.[a]**	
	Pulse oximetry is recommended for determining the presence of hypoxaemia and for guiding administration of oxygen therapy to infants and children.	Strong recommendation (*low-quality evidence*)
2.	**When clinical signs are used to detect hypoxaemia in children:[b]**	
(a)	Use pulse oximetry whenever possible for the detection of hypoxaemia in children with severe lower respiratory tract infections. If oximetry is not available, the following clinical signs could be used to determine use of oxygen therapy: • central cyanosis • nasal flaring • inability to drink or feed (when due to respiratory distress) • grunting with every breath • depressed mental state (i.e. drowsy, lethargic)	Strong recommendation (*low-quality evidence*)
(b)	In some situations, and depending on the overall clinical condition, children with the following less specific signs may also need oxygen: • severe lower chest wall indrawing • respiratory rate ≥ 70/min • head nodding	Strong recommendation (*very low-quality evidence*)

[a] Although no studies have been reported of the comparison of measuring arterial blood gases with pulse oximetry in children, a meta-analysis of studies in adults showed a very high correlation (*11*). Pulse oximetry is non-invasive, easy to do and does not require any special skills.

[b] Clinical signs are very unreliable for detecting hypoxaemia and should not be relied upon except when pulse oximetry is not available.

Continue giving oxygen continuously until the child is able to maintain an oxygen saturation > 90% in room air. When the child is stable and improving, take the child off oxygen for a few minutes. If the oxygen saturation

remains > 90%, discontinue oxygen, but check again half an hour later and every 3 h thereafter on the first day off oxygen to ensure that the child is stable. When pulse oximetry is not available, the duration of oxygen therapy is guided by clinical signs, which are less reliable. Oxygen therapy is recommended to children with very severe disease /severe pneumonia and bronchitis having following signs:

- Inability to drink (when this is due to respiratory distress)
- Fast breathing (Respiratory rate ≥60/min)
- Severe chest in-drawing
- Child Wheezing

Oxygen should be available at all times. The two main sources of oxygen are cylinders and oxygen concentrators. It is important that all equipment is checked for compatibility. **Nasal prongs** are the preferred method of delivery in most circumstances and recommended for < 5 years of age, as they are safe, non-invasive, reliable and do not obstruct the nasal airway. **Nasal** or **nasopharyngeal catheters** may be used as an alternative only when nasal prongs are not available.

Oxygen therapy: Nasal prongs correctly positioned and secured

Nasal prongs. These are short tubes inserted into the nostrils. Place them just inside the nostrils, and secure with a piece of tape on the cheeks near the nose (see figure). Care should be taken to keep the nostrils clear of mucus, which could block the flow of oxygen

Set a flow rate of 1–2 litres/min (0.5 litre/min for young infants) to deliver an inspired oxygen concentration of up to 40%. Humidification is not required with nasal prongs.

Nasal catheter: a 6 or 8 French gauge catheter that is passed to the back of the nasal cavity. Insert the catheter at a distance equal to that from the side of the nostril to the inner margin of the eyebrow.

Set a flow rate of 1–2 litres/min. Humidification is not required.

Figure 1:Nasal-Nasopharyngeal Catheter positioning

Nasopharyngeal catheter. A 6 or 8 French gauge catheter is passed to the pharynx just below the level of the uvula. Insert the catheter at a distance equal to that from the side of the nostril to the front of the ear (see figure). If it is placed too far down, gagging and vomiting and, rarely, gastric distension can occur.

Set a flow rate of 1–2 litres/min to avoid gastric distension. Humidification is required.

Table 2: Comparisons of Pulse Oximetry and Blood Gas Analysis
(Oxygen Therapy for Children: a manual for health workers WHO)

FACTOR TO BE CONSIDERED	PULSE OXIMETRY	ARTERIAL BLOOD GAS
Pain and distress to patient	Minor discomfort from being held	Major discomfort from blood sampling
Risk to staff	Nil	Potential for needle stick injury
Suitability for monitoring	Continuous or regular spot checks	Information for only a single time
Cost	Low to moderately expensive[a] plus moderate recurrent costs (sensor probes)	Very expensive plus high recurrent costs for reagents and maintenance
Skill required	Use and interpretation can be taught to nurses and non-specialist health workers.	High level of laboratory expertise and skill in clinical interpretation
Indication of ventilation adequacy	Useful information on ventilation only for children breathing room air; gives no indication of ventilation for children on supplemental oxygen	Yes
Indication of acid-base state or electrolytes	No	Yes
Major sources of error	• Poor skin perfusion • Movement artefact • Greater margin of machine error at lower SpO_2	• Uncooperative child • Clotted specimen • Air in syringe • Laboratory handling

[a] Depending on the model and sophistication of the pulse oximeter; however, robust low-cost models that can be used for the interventions described have become available.


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