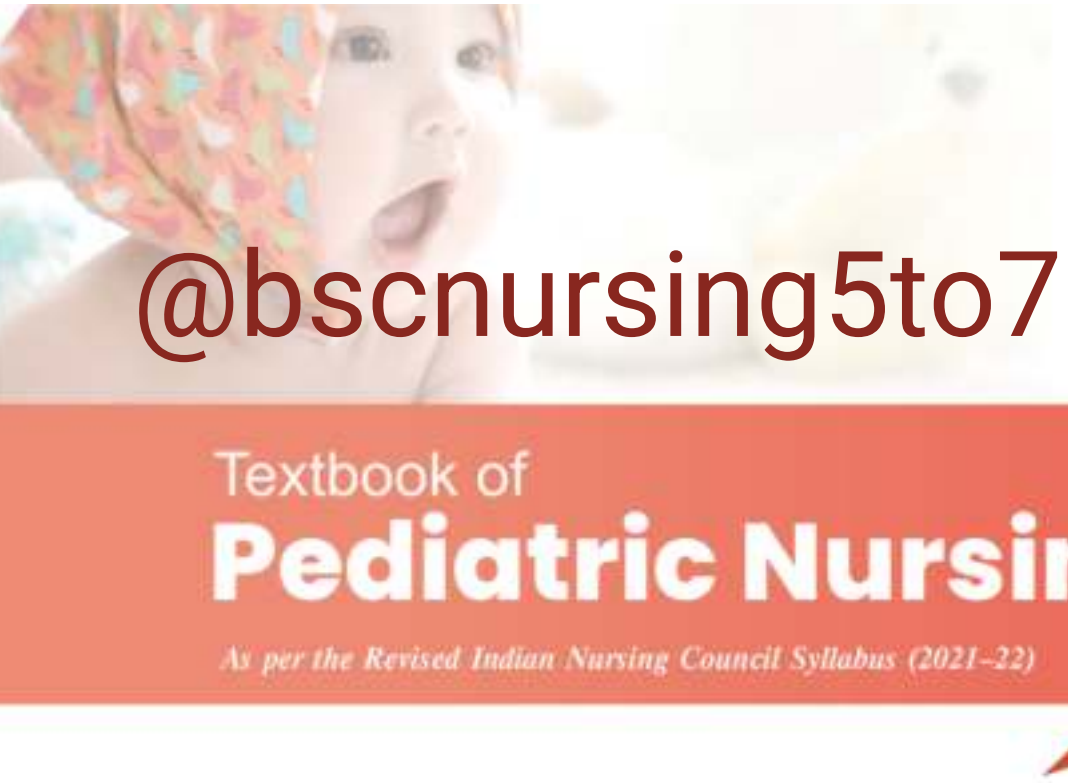


Textbook of Pediatric Nursing

As per the Revised Indian Nursing Council Syllabus (2021–22)

Unit IV

Integrated Management of Neonatal and Childhood Illness (IMNCI)

Learning Objectives

At the end of this unit, the students will be able to:

- Apply principles and strategies of IMNCI.

Unit Outline

Chapter 10

Management of Sick Young Infant—up to 2 Months

Chapter Outline

- Introduction
- Evidence-Based Syndromic Approach
- Principles of Integrated Care
- IMNCI Case Management Process
- Treat the Young Infant and Counsel the Mother

INTRODUCTION

Common childhood illnesses, like acute respiratory infections, diarrhea, measles, and malnutrition result in high mortality among children less than 5 years of age. Neonatal mortality contributes to about 70% of infant deaths and most of these deaths occur during the 1st week of life. Poor access to health care and delay in referral further make the problem complicated.

Most of the presenting symptoms in young infants and children may be associated with different illnesses. Often a young infant or child suffers from more than one illness. Therefore, for early detection and prompt treatment of sickness in under five children, there is need for an effective strategy that is based on a holistic and integrated approach, which is available to the majority of those in need and which takes into account the capacity and the structure of health systems, as well as traditions and beliefs in the community.

Integrated management of childhood illness (IMCI) strategy was developed by WHO in collaboration with UNICEF and many other agencies in the mid-1990s. It is a curative, preventive and promotive strategy aimed at reducing the death and frequency and severity of illness and disability, and contributes to improved growth and nutrition of under five children. This strategy has been expanded in India to include neonatal care at home as well as in the health facilities and renamed as 'Integrated Management of Neonatal and Childhood Illness' (IMNCI).

EVIDENCE-BASED SYNDROMIC APPROACH

The IMNCI clinical guidelines target children who are less than 5 years old, the age group that bears the highest burden of deaths. The guidelines represent an evidence-based, syndromic approach to case management that includes rational, effective and affordable use of drugs and diagnostic tools. In situations where laboratory support and clinical resources are limited, the syndromic approach is a more realistic and cost effective way to manage patients. Careful and systematic assessment of common symptoms, using well selected reliable clinical signs, helps to guide rational and effective actions. An evidence-based syndromic approach can be used to determine:

- Health problems the child may have
- Severity of the child's illness
- Actions that can be taken to care for the child, (e.g., refer the child immediately, manage with available resources, or manage at home)

Additionally, IMNCI promotes:

- Optimum utilization of the curative interventions to the capacity and functions of the health system; and
- Active involvement of family and the community in the health care process.

Integrated case management of the most common neonatal and childhood problems with a focus on the most common causes of death in under five children constitutes the core of the strategy.

The strategy includes three main components:

- Improvement in the case management skills of health staff through provision of locally adapted guidelines and activities to promote their use.
- Improvement in the overall health system.
- Improvement in family and community health care practices.

PRINCIPLES OF INTEGRATED CARE

Depending on a child's age, various clinical signs and symptoms differ in their degree of reliability and diagnostic value and importance. IMNCI clinical guidelines focus on neonates, infants as well as children up to 5 years of age. However, in view of similarities in the spectrum of illnesses, clinical signs and management protocols, the treatment guidelines have been broadly described under two age categories are as follows:

1. Young infants age up to 2 months
2. Children age 2 months up to 5 years

The IMNCI guidelines are based on the following principles:

- All sick children under 5 years of age must be examined for conditions, which indicate immediate referral or hospitalization.
- Children must be routinely assessed for major symptoms, nutritional and immunization status, feeding problems and other potential problems.
- Only a limited number of carefully selected clinical signs are used based on evidence of their sensitivity and specificity to detect disease.
- Based on the presence of selected clinical signs, the child is placed in a "classification". Classifications are not specific diagnosis but categories that are used to determine the treatment.
- Classifications are color-coded and suggest referral (pink), treatment in health facility (yellow) or management at home (green).
- IMNCI guidelines address most common, but not all pediatric problems.
- A limited number of essential drugs are used.
- Caretakers are actively involved in the treatment of children.
- Counseling of caretakers about home care including feeding, fluids and when to return to health facility.

IMNCI CASE MANAGEMENT PROCESS

The overall case management process is summarized in Figure 10.1. Steps of case management process are as follows:

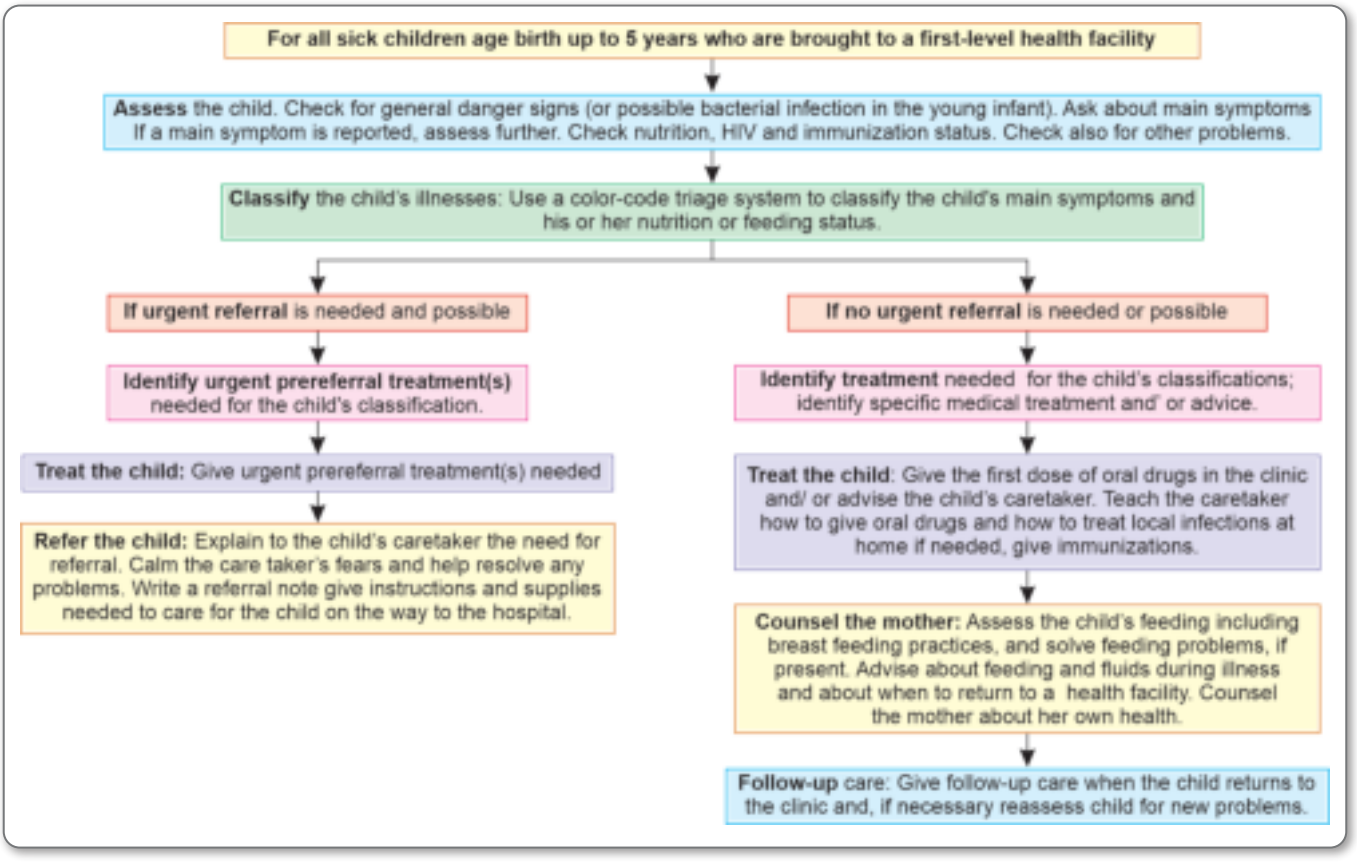


Figure 10.1: IMNCI case management process

- Assess the young infant/child
- Classify the illness
- Identify treatment
- Treat the young infant/child
- Counsel the mother
- Provide follow up care.

IMNCI classification table describes the steps of case management process as Assess, Classify and Identify treatment. There are separate classification boxes for main symptoms, nutritional status and anemia. The classification tables have pink yellow and green rows. Pink calls for hospital referral, yellow for initiation of treatment and green means that the child can be sent home with careful advice on when to return.

Effective Communication with Mother

Effective communication with mother or caregiver is critical to ensure that the child receives a proper care. Mother should know about treatment and its importance.

Assessment of sick young infants up to 2 months of age includes (Fig. 10.2):

- History taking and communicating with the caretaker about the young infant's problem
- Checking for bacterial infection or jaundice
- Checking for diarrhea
- Checking for feeding problems or malnutrition
- Checking immunization status and
- Assessing other problems

The detailed assessment and management of sick young infant is depicted in Figure 10.3 and Flowchart 10.1.

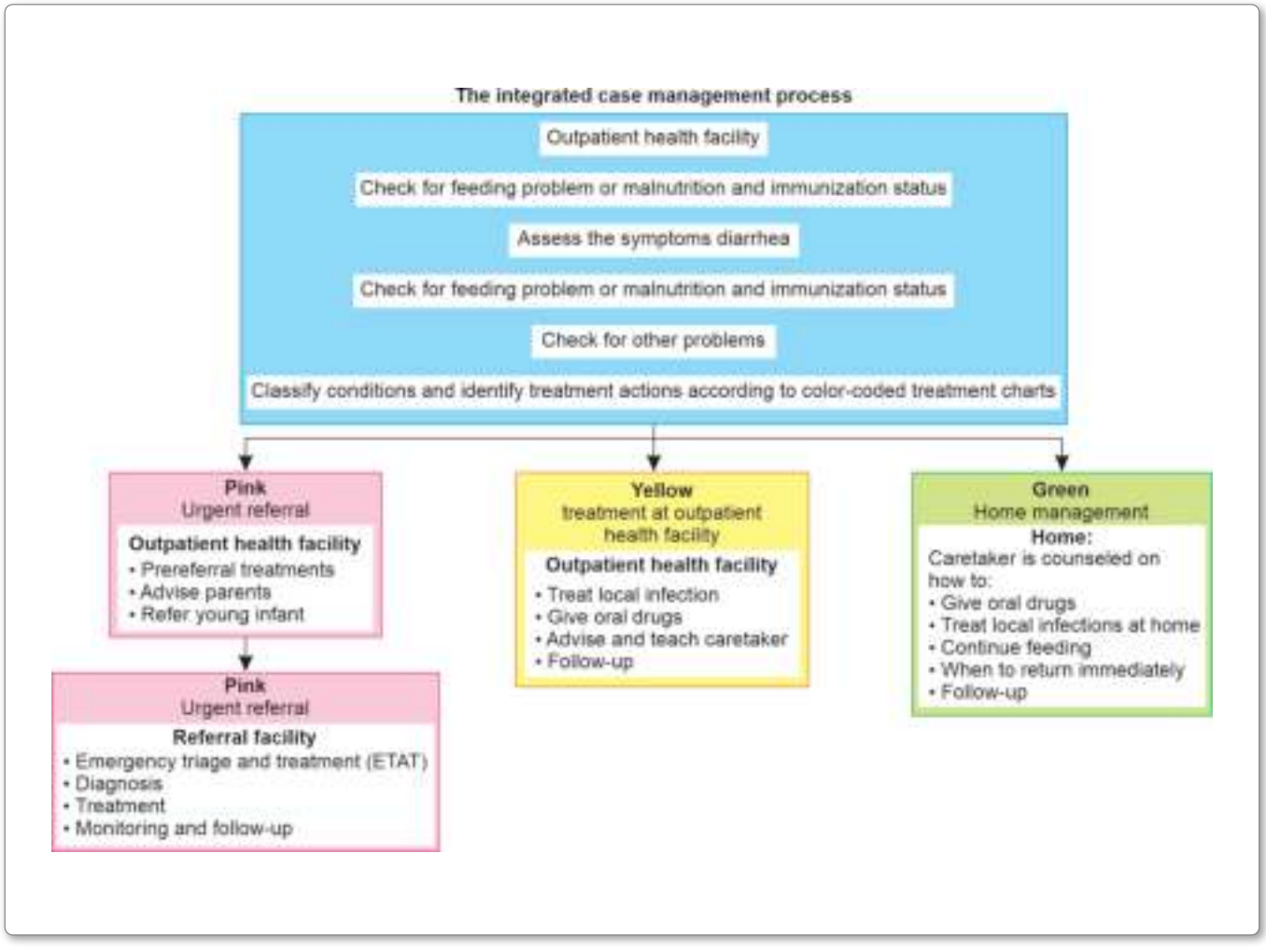
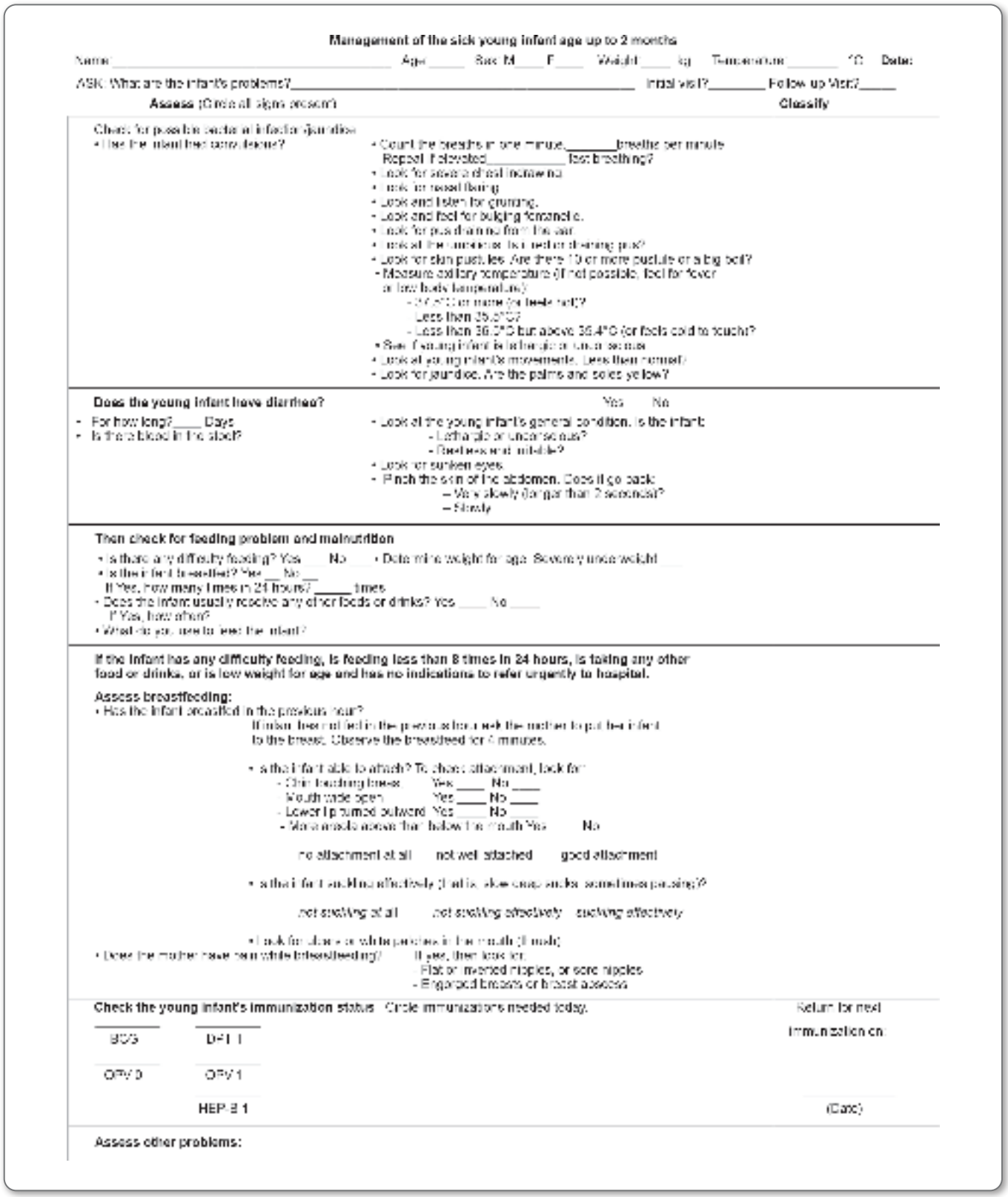


Figure 10.2: IMNCI case management process for sick young infant up to 2 months of age



Management of the sick young infant age up to 2 months

Name _____ Age ____ Sex: M ___ F ___ Weight ____ kg Temperature _____ °C Date:

ASK: What are the infant's problems? _____ Initial visit? _____ Follow up Visit? _____

Assess (Check all signs present) **Classify**

Check for possible serious bacterial infection/jaundice

- Has the infant had convulsions?
- Count the breaths in one minute. _____ breaths per minute
  Repeat if elevated _____ fast breathing?
- Look for severe chest indrawing
- Look for nasal flaring
- Look and listen for grunting
- Look and feel for bulging fontanelle
- Look for pus draining from the ear
- Look at the umbilicus. Is it red or draining pus?
- Look for skin pustules. Are there 10 or more pustules or a big boil?
- Measure axillary temperature (if not possible, feel for fever or low body temperature)
  - 37.5°C or more (or feels hot)?
  - Less than 35.5°C?
  - Less than 36.0°C but above 36.4°C (or feels cold to touch)?
- See if young infant is lethargic or unconscious
- Look at young infant's movements. Less than normal?
- Look for jaundice. Are the palms and soles yellow?

Does the young infant have diarrhea? Yes No

- For how long? ____ Days
- Is there blood in the stool?
- Look at the young infant's general condition. Is the infant
  - Lethargic or unconscious?
  - Restless and irritable?
- Look for sunken eyes
- Pinch the skin of the abdomen. Does it go back
  - Very slowly (longer than 2 seconds)?
  - Slowly

Then check for feeding problem and malnutrition

- Is there any difficulty feeding? Yes No
- Determine weight for age: Severely underweight
- Is the infant breastfed? Yes No
  If Yes, How many times in 24 hours? _____ times
- Does the infant usually receive any other foods or drinks? Yes No
  If Yes, how often?
- What do you see to feed the infant?

If the infant has any difficulty feeding, is feeding less than 8 times in 24 hours, is taking any other food or drinks, or is low weight for age and has no indications to refer urgently to hospital.

Assess breastfeeding:

- Has the infant breastfed in the previous hour?
  If infant has not fed in the previous hour, ask the mother to put the infant to the breast. Observe the breastfeed for 4 minutes.
- Is the infant able to attach? To check attachment, look for
  - Chin touching breast Yes ____ No ____
  - Mouth wide open Yes ____ No ____
  - Lower lip turned outward Yes ____ No ____
  - More areola seen from above the mouth Yes No

  no attachment at all not well attached good attachment
- Is the infant sucking effectively (Latch, slow deep sucks sometimes pausing)?

  not sucking at all not sucking effectively sucking effectively
- Look for ulcers or white patches in the mouth (thrush)
- Does the mother have pain while breastfeeding? If yes, then look for
  - Flat or inverted nipples, or sore nipples
  - Engorged breasts or breast abscess

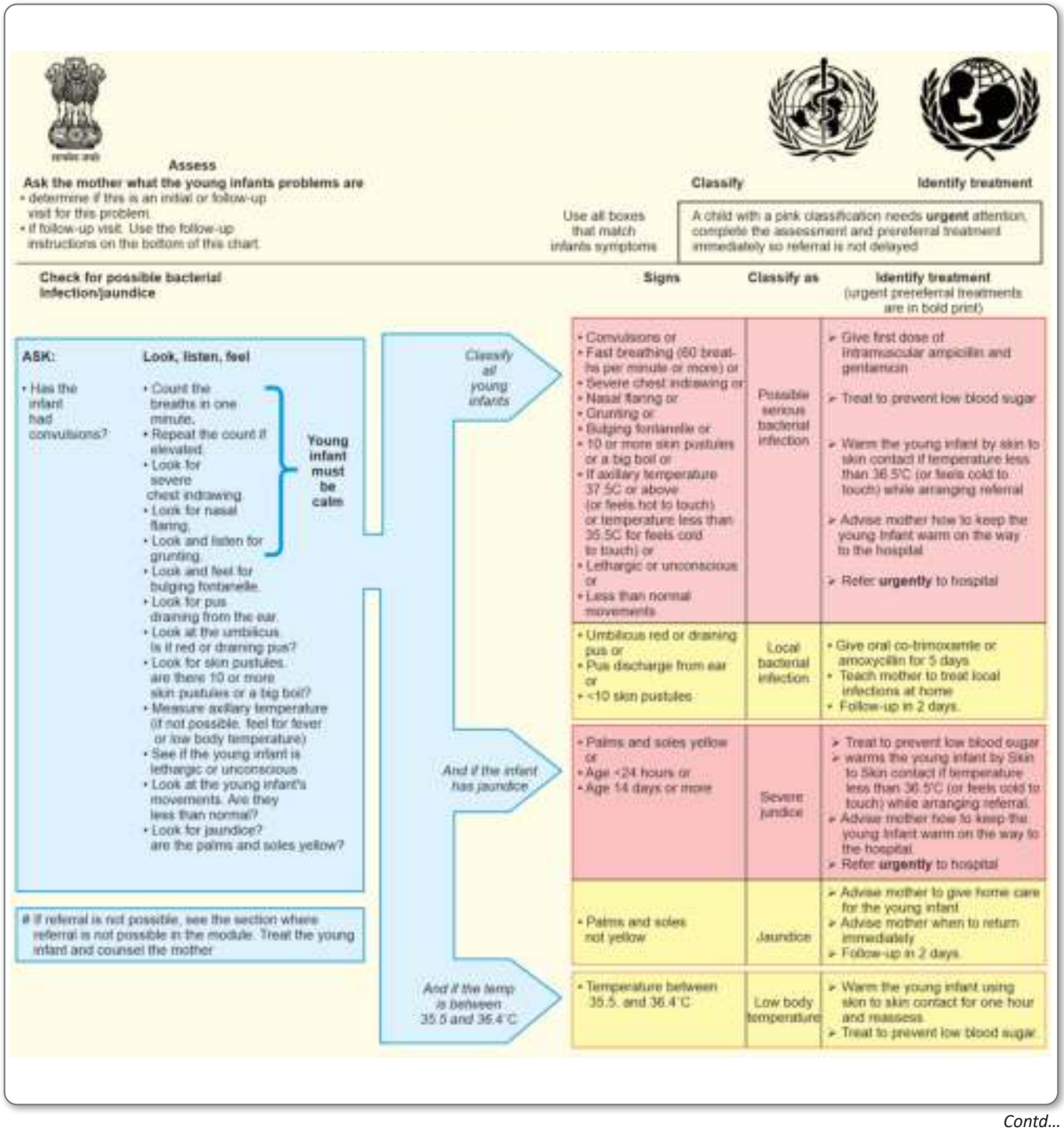
Check the young infant's immunization status Circle immunizations needed today. Return for next immunization on

BCG | DPT 1 | OPV 0 | OPV 1 | HEP B 1 (Date)

Assess other problems:

Figure 10.3: IMNCI case management worksheet for sick young infants up to 2 months

Flowchart 10.1 Assess and classify the sick young infant age up to 2 months



Contd...

Then ask:
Does the young infant have diarrhea?*

If yes, ask:

- For how long?
- Is there blood in the stool?

Look and feel

- Look at the young infant's general condition. Is the infant: Lethargic or unconscious? Restless and irritable?
- Look for sunken eyes
- Pinch the skin of the abdomen. Does it go back very slowly (longer than 2 seconds)? slowly?

Classify Diarrhea

• What is diarrhea in a young infant?

If the stools have changed from usual pattern and are many and watery (more water then fecal matter).The normally frequent or loose stools of a breast feeding baby are not diarrhea

If referral is not possible, see the section **where referral is not possible** in the module ***treat the young infant and counsel the mother***

For Dehydration		
Two of the following signs: • lethargic or unconscious • Sunken eyes • Skin pinch goes back very slowly	Severe dehydration	➢ Give first dose of intramuscular ampicillin and gentamicin ➢ If infant also has low weight or another severe classification: • Refer ***urgently*** to hospital with mother giving frequent sips of ORS on the way • Advise mother to continue breast feeding • Advise mother how to keep the young infant warm on the way to the hospital *or* ➢ If infant does not have low weight or any other severe classification: • Give fluid for severe dehydration (Plan C) and then refer to hospital after rehydration
Two of the following signs: • Restless, irritable • Sunken eyes • Skin pinch goes back slowly	Some dehydration	➢ If infant also has low weight or another severe classification: • Give first dose of intramuscular ampicillin and gentamicin • Refer **urgently** to hospital with mother giving frequent sips of ORS on the way • Advise mother to continue breastfeeding • Advise mother how to keep the young infant warm on the way to the hospital ➢ If infant does not have low weight or another severe classification: • Give fluids for some dehydration (Plan B) • Advise mother when to return immediately • Follow-up in 2 days
• Not enough signs to classify as some or severe dehydration	No dehydration	➢ Give fluids to treat diarrhea at home (Plan A) ➢ Advise mother when to return immediately ➢ Follow up in 5 days if not improving
And if diarrhea 14 days or more		
• Diarrhea lasting 14 days or more	Severe persistent diarrhea	➢ Give first dose of intramuscular ampicillin and Gentamicin if the young infant has low weight, dehydration or another severe classification
And if blood in stool		
• Blood in the stool	Severe dysentery	➢ Give first dose of intramuscular ampicillin and gentamicin if the young infant has low weight, dehydration or another severe classification ➢ Treat to prevent low blood sugar ➢ Advise how to keep infant warm on the way to the hospital ➢ Refer to hospital

Contd...

Then check for feeding problem and malnutrition:

Ask:
- Is there any difficulty feeding?
- Is the infant breastfed? If yes, how many times in 24 hours?
- Does the infant usually receive any other foods or drinks? If yes, how often?
- What do you use to feed the infant?

Look, feel:
- Determine weight for age

If an infant: Has any difficulty feeding, or
Is breastfeeding less than 8 times in 24 hours, or
Is taking any other foods or drinks, or
Is low weight for age,
and
Has no indications to refer urgently to hospital:

Assess breast feeding:

- Has the infant breast fed in the previous hour?

If the infant has not fed in the previous hour, ask the mother to put her infant to the breast. Observe the breastfeed for 4 minutes (If the infant was fed during the last hour, ask the mother if she can wait and tell you when the infant is willing to feed again.)
- Is the infant able to attach?
  - No attachment at all
  - Not well attached
  - Good attachment

To check attachment. Look for:
- Chin touching breast
- Mouth wide open
- Lower lip turned outward
- More areola visible above than below the mouth

(All of these signs should be present if the attachment is good)

- Is the infant suckling effectively (that is, slow deep suck, sometimes pausing)?
  - Not suckling at all
  - Not suckling effectively
  - Suckling effectively
- Look for ulcers or white patches in the mouth (thrush)

- Does the mother have pain while breast feeding?

If yes, look and feel for:
- Flat or inverted nipples, or sore nipples
- Engorged breasts or breast abscess

Classify Feeding		
• Not able to feed or • No attachment at all or • Not suckling at all or • Very low weight for age	Not able to feed possible serious bacterial infection or severe malnutrition	➢ Give first dose of intramuscular ampicillin and gentamicin ➢ Treat to prevent low blood sugar ➢ Warm the young infant by skin to skin contact if temperature less then 36.5°C (or feels cold to touch) while arranging referral ➢ Advise mother how to keep the young infant warm on the way to the hospital ➢ Refer Urgently to hospital
• Not well attached to breast or • Not suckling effectively or • Less than 8 breastfeeds in 24 hours or • Receives other foods or drinks or • Thrush (ulcers or white patches in mouth) or • Low weight for age or • Breast or nipple problems	Feeding problem or low weight	➢ If not well attached or not suckling effectively teach correct positioning and attachment ➢ If breastfedding less than 8 times in 24 hours advise to increase frequency of feeding ➢ If receiving other foods or drinks counsel mother about breast fedding more, reducing other foods or drinks, and using a cup and spoon ➢ If not breastfeeding at all, advise mother about giving locally appropriate animal milk and teach the mother to feed with a cup and spoon ➢ If thrush, teach the mother to treat thrush at home ➢ If low weight for age, teach the mother how to keep the young infant with low weight warm at home ➢ If breast or nipple problem, teach the mother to treat breast or advise mother to give home care for the young infant nipple problems ➢ Advice mother when to return immediately ➢ Follow-up any feeding problem or thrush in 2 days ➢ Follow-up low weight for age in 14 days
• Not low weight for age and no other signs of inadequate feeding	No feeding problem	➢ Advice mother to give home care for the young infant ➢ Advice mother when to return immediately ➢ Praise the mother for feeding the infant well

If referral is not possible, see the section **where Referral Is not Possible** in the module **treat the Young Infant and Counsel the mother.**

Then check the young infant's immunization status:

	AGE	Vaccine
Immunization schedule:	Birth	BCG OPV 0
	6 weeks	DPT I OPV I HEP-B

- Hepatitis B to be given wherever included in the immunization schedule

Assess other problems

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

Give These Treatments in Clinic Only

- Explain to the mother why the drug is given.
- Determine the dose appropriate for the infant's weight (or age).
- Use a sterile needle and sterile syringe. Measure the dose accurately.
- Give the drug as an intramuscular injection.
- If infant cannot be referred, follow the instructions provided in the section of pre-referral treatment. Treat the Young Infant and counsel the mother.

- **Treat the young infant to prevent low blood sugar**
- **If the child is able to breastfeed:**
  Ask the mother to breastfeed the child.

- **If the child is not able to breast feed but is able to swallow:**
  Give 20-50 mL (10 mL/kg) expressed breastmilk or locally appropriate animal milk (with added sugar) before departure. If neither of these is available, give 20-50 mL (10 mL/kg) sugar water.

To make sugar water: dissolve 4 level teaspoons of sugar (20 g) in a 200-mL cup of clean water.

- **If the child is not able to swallow:**
  Give 20-50 mL (10 mL/kg) of expressed breastmilk or locally appropriate animal milk (with added sugar) or sugar water by nasogastric tube.

- **Give first dose of intramuscular antibiotics**
- Give first dose of both ampicillin and gentamicin intramuscularly

Weight	Gentamicin Dose: 5 mg per kg			Ampicillin Dose: 100 mg per kg (Vial of 500 mg mixed with 2.1 mL of sterile water for injection to give 500mg/2.5 mL or 200mg/1 mL)
	Undiluted 2 mL vial containing 20 mg/2 mL i.e. 10 mg/mL	or	Add 6 mL sterile water to 2 mL containing 80 mg/2 mL i.e. 8 mL at 10 mg/mL	
1 kg	0.5 mL*			0.5 mL
2 kg	1.0 mL*			1.0 mL
3 kg	1.5 mL*			1.5 mL
4 kg	2.0 mL*			2.0 mL
5 kg	2.5 mL*			2.5 mL

*Avoid using vials containing 40 mg/mL gentamicin.

- **Referral is the best option for a young infant classification with possible serious bacterial infection, severe dehydration, some dehydration with low weight and severe malnutrition.**
  If referral is not possible, give oral amoxycillin every 8 hours and intramuscular gentamicin once daily.

Keep the Young Infant Warm

- **Warm the young infant using skin to skin contact (Kangaroo mother care)**
  - Provide privacy to the mother. If mother is not available, skin to skin contact may be provided by the father or any other adult.
  - Request the mother to sit or recline comfortably.
  - Undress the baby gently, except for cap, nappy and socks.
  - Place the baby prone on mother's chest in an upright and extended posture, between her breasts, in skin to skin contact; Turn baby's head to one side to keep airways clear.
  - Cover the baby with mother's blouse, 'pallu' or gown; wrap the baby-mother pair with an added blanket or shawl.
  - Breastfeed the baby frequently.
  - If possible, warm the room (>25°C) with a heating device.

  - **Reassess after 1 hour:**
    – Look, listen and feel for signs of possible serious bacterial infection and
    – Measure axillary temperature by placing the thermometer in the axilla for 5 minutes (or feel for low body temperature).

- **If any signs of possible serious bacterial infection or temperature still below 36.6°C (or feels cold to touch):**
- **Refer urgently to hospital after giving prereferral treatments for possible serious bacterial infection.**

- If no sign of possible serious bacterial infection and temperature 36.5°C or more (or is not cold to touch):
  - Advise how to keep the infant warm at home.
  - Advise mother to give home care.
  - Advise mother when to return immediately.

- Skin to skin contact is the most practical, preferred method of warming a hypothermic infant in a primary health care facility.
  If not possible:
  - Cover the baby in 3-4 layers, cover head with a cap and body with a blanket or a shawl; hold baby close to caregiver's body, or
  - Place the baby under overhead radiant warmer, if available.

(Avoid direct heat from a room heater and use of hot water rubber bottle or hot brick to warm the baby because of danger of accidental burns).

Keep the young infant warm on the way to the hospital
- By skin to skin contact , or
- Cover the baby in 3-4 layers, cover head with a cap and body with a blanket or a shawl; hold baby close to caregiver's body

Treat the Young Infant for local Infections at Home

Teach the mother to give oral drugs at home

Follow the instructions below for every oral drug to be given at home. Also follow the instructions listed with each drug's dosage table.

- Determine the appropriate drugs and dosage for the infant's age or weight.
- Tell the mother the reason for giving the drug to the infant.
- Demonstrate how to measure a dose.
- Watch the mother measuring a dose correctly herself.
- Ask the mother to give the first dose to her infant.
- Explain carefully how to give the drug. Then label and package the drug.
- If more than one drug will be given, collect, count and package each drug separately.
- Explain that all the oral drug tablets or syrups must be used to finish the course of treatment, even if the infant gets better.

- **Give an appropriate oral antibiotic**

For local bacterial infection:
- Give oral amoxycillin or co-trimoxazole

	Amoxycillin Give this dose 3 times daily for 5 days		Co-trimoxazole (trimethoprim + sulphamethoxazole) Give this dose 2 times daily for 5 days	
Age or weight	Tablet 250 mg	Syrup 125 mg in 5 ml	Adult tablet single strength (80 mg trimethoprim + 400 mg sulphamethoxazole)	Paediatric tablet (20 mg trimethoprim + 100 mg sulphamethoxazole)
Birth up to 1 month (<2 kg)		1.25 ml		1/2*
1 month up to 2 months (2–4 kg)	1/4	2.5 ml	1/4	1

*Avoid co-trimoxazole in infants less than 1 month of age who are premature or jaundiced.

- **Teach the mother to treat local infections at home**
  - Explain how the treatment is given.
  - Watch her as she does the first treatment in the clinic.
  - She should return to the clinic if the infection worsens.
  - Check the mother's understanding before she leaves the clinic.

To treat skin pustules or umbilical infection
- Apply gentian violet paint twice daily
  The mother should
- Wash hands.
- Gently wash off pus and crusts with soap and water.
- Dry the area and paint with gentian violet 0.5%
- Wash hands.

Dry the ear by wicking
- 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 young infant's ear.
- Remove the wick when wet.
- Replace the wick with a clean one and repeat these steps until the ear is dry.

Treat the Young Infant for Feeding Problems

- **Teach correct positioning and attachment for breastfeeding**
- Show the mother how to hold her infant
  - with the infant's head and body straight
  - Facing her breast with infant's nose opposite her nipple
  - With infant's body close to her body
  - Supporting infant's whole, not just neck and shoulders.

- Show her how to help the infant to attach. She should:
  - Touch her infant's lips with her nipple
  - Wait until her infant's mouth is opening wide
  - Move her infant quickly onto her breast, aiming the infant's lower lip well below the nipple.

- Look for signs of good attachment and effective sucking. If the attachment or sucking is not good, try again.

- If still not sucking effectively, ask the mother to express breast milk and feed with a cup and spoon in the clinic. To express breast milk:
  - The mother should wash hands, sit comfortably and hold cup or katori under the nipple
  - Place finger and thumb each side of areola and press inwards towards chest wall. Do not squeeze the nipple.
  - Press behind the nipple and areola between finger and thumb to empty milk from inside the areola; press and release repeatedly
  - Repeat the process from all sides of areola to empty breast completely
  - Express one breast for at least 3–5 minutes until flow slops. Then express from the other side

- If able to take with a cup and spoon advise mother to keep breastfeeding the young infant and the end of each feed express breast milk and feed with a cup and spoon.

- If not able to feed with a cup and spoon, refer to hospital.

- **Teach the mother to food with a cup and spoon**

  - Place the young infant in upright posture (feeding him in lying position can cause aspiration)
  - Keep a soft cloth napkin or cotton on the neck and upper trunk to mop the spilled milk.
  - Gently stimulate the young infant to wake him up
  - Fill the spoon with milk, a little short of the brim
  - Place the spoon on young infant's lips, near the corner of the mouth.
  - If the young infant does not actively swallow the milk, do no not insist on feeding. Try again after some time
  - If not able to feed with a cup and spoon, refer to hospital.

- **To treat thrush (ulcers or white patches in mouth)**
- Tell the mother to do the treatment twice daily the mother should:
  - Wash hands
  - Wash mouth with clean soft cloth wrapped around the finger and wet with salt water.
  - Paint the mouth with gentian violet 0.25%
  - Wash hands

Treat the Young Infant for Feeding Problems or Low Weight

- Teach the mother to treat breast or nipple problems
  - If the nipple is flat or inverted, evert the nipple several times with fingers before each feed and put the baby to the breast

  - If nipple is sore, apply breast milk for soothing effect and ensure correct positioning and attachment of the baby. If mother continues to have discomfort, feed expressed breast milk with katori and spoon.

  - If breasts are engorged, let the baby continues to suck if possible. If the baby cannot suckle effectively, help the mother to express milk and then put young infant to breast. pulling a warm compress on the breast may help.

  - If breast abscess, advise mother to feed from the other breast and refer to a surgeon. If the young infant wants more milk, feed undiluted animal milk with added sugar by cup and spoon.

- **Teach the mother how to keep the young infant with low weight or low body temperature warm at home:**
  - Do not bathe young infant with low weight or low body temperature; instead sponge with lukewarm water to clean.

  - Provide skin to skin contact (kangaroo mother care) as much as possible, day and night.

  - When skin to skin contact not possible :
  - Keep the room warm (>25°C) with a home heating device
  - Cover the baby in 3-4 layers; cover the head, hands and feet with cap, gloves and socks, respectively
  - Let baby and mother lie together on a soft, thick bedding
  - Cover the baby and the mother with additional quilt, blanket or shawl, especially in cold weather

Feel the feet of the baby periodically-baby's feet should be always warm to touch

- **Immunize every sick young infant, as needed.**

Counsel the Mother

➢ **Advise mother to give home care for the young infant**

➢ Feed
➢ Fluids
] Breast feed frequently, as often and for as long as the infant wants, day or night, during sickness and health.

➢ Make sure the young infant stays warm at all times.
- In cool weather, cover the infant's head and feet dress the infant with extra clothing.

➢ **Advise the mother when to return to physician or health worker immediately:**

Follow-up	
If the infant has	**Return for follow-up in**
Local bacterial infection Jaundice Diarrhea Any feeding problem Thrush	2 days
Low weight-for-age	14 days

When to return immediately:
Advise the mother to return immediately if the young infant has any of these signs:
Breast feeding or drinking poorly Becomes sicker Develops a fever or feels cold to touch Fast breathing Difficult breathing Yellow palms and soles (if infant has jaundice) Diarrhoea with blood in stool

➢ Counsel the mother about her own health
- ➢ If the mother is sick, provide care for her, or refer her for help.
- ➢ If she has a breast problem (such as engorgement, sore nipples, breast infection), provide care for her or refer her for help.
- ➢ Advise her to eat well to keep up her own strength and health.
- ➢ Give iron folic acid tablets for a total of 100 days.
- ➢ Make sure she has access to
  - Contraceptives
  - Counseling on STD and AIDS prevention

Give Follow-up Care for the Sick Young Infant

➢ **Local bacterial infection**
After 2 days:

➢ Look at the umbilicus. Is it red or draining pus?
➢ Look for skin pustules. Are there >10 pustules or a big boil?
➢ Look at the ear. Is IT still discharging pus?

Treatment :

➢ If umbilical redness or pus remains or is worse, refer to hospital
➢ If umbilical pus and redness are improved, tell the mother to continue giving the 5 days of antibiotic and continue treating the local infection at home.
➢ If >10 skin pustules or a big boil, refer to hospital.
➢ If >10 skin pustules and no big boil, tell the mother to continue giving 5 days of antibiotic and continue treating the local infection at home.
➢ If ear discharge persists. Continue wicking to dry the ear. Continue to give antibiotic
to complete 5 days of treatment even if ear discharge has stopped.

➢ **Low weight**
after 14 days.
Weigh the young infant and determine if the infant is still low weight for age.
Reassess feeding. >See "Then check for feeding problem or low weight" above.
➢ If the infant is no longer low weight for age, praise the mother and encourage her to continue
➢ If the infant is still low weight for age, but is feeding well, praise the mother.
Ask her to have her infant weighed again within a month or when she returns for immunization
➢ If the infant is still low weight for age and still has a feeding problem, counsel the mother about the feeding problem. Ask the month to return again in 2 days.

Exception:
If you do not think that feeding will improve, or if the young infant has lost weight, refer to hospital.

➢ **Jaundice**
After 2 days:
Look for jaundice
- Are the palms and soles yellow?
➢ If palms and soles are yellow or age < 14 days or more refer to hospital
➢ If palms and soles are not yellow and age less than 14 days, advise home care and when to return immediately

➢ **Diarrhea**
After 2 days:
Ask:
- Has the diarrhea stopped?
➢ If diarrhea persists, assess the young infant for diarrhea (> See assess and classify chart) and manage as per initial visit.
➢ If diarrhea stopped—reinforce exclusive breastfeeding

➢ **Feeding problem**
After 2 days.
Reassess feeding > See "Then check for feeding problem or low weight" above.
Ask about any feeding problems found on the initial visit.

➢ Counsel the mother about any new or continuing feeding problems. If you counsel the mother to make significant changes in feeding, ask her to bring the young infant back again in 2 days.

Exception: If you do not think that feeding will improve, or if the young infant has lost weight, refer to hospital

➢ **Thrush**
After 2 days:
Look for ulcers or white patches in the mouth (thrush)
Reassess feeding > See "Then check for feeding problem or low weight"
➢ If thrush is worse, or the infant has problems with attachment or suckling, refer to hospital.
➢ If thrush is the same or better and if the infant is feeding well, continue gentian violet 0.25% for a total of 5 days.

Summary

IMNCI is a curative, preventive and promotive strategy aimed at reducing the death and frequency and severity of illness and disability, and contributes to improved growth and nutrition of under five children. It follows an evidence-based, syndromic approach to case management that includes rational, effective and affordable use of drugs and diagnostic tools. The treatment guidelines have been described for children up to 5 years of age.

Assess Yourself

1. List the principles of IMNCI.
2. List the signs of bacterial infection in a sick young infant up to 2 months of age.
3. What are the signs of good attachment while breastfeeding?

Chapter 11

Management of Sick Children—2 Months to 5 Years

Chapter Outline

INTRODUCTION

Assessment of sick children (2 months to 5 years) includes: (Fig. 11.1):

- History taking and communicating with the caretaker about the child's problem
- Checking for general danger signs
- Checking main symptoms
- Checking for malnutrition
- Checking for anemia
- Assessing the child's feedings
- Checking immunization status
- Assessing other problems

The detailed assessment and management of sick young infant is depicted in Figure 11.2 and Flowchart 11.1.

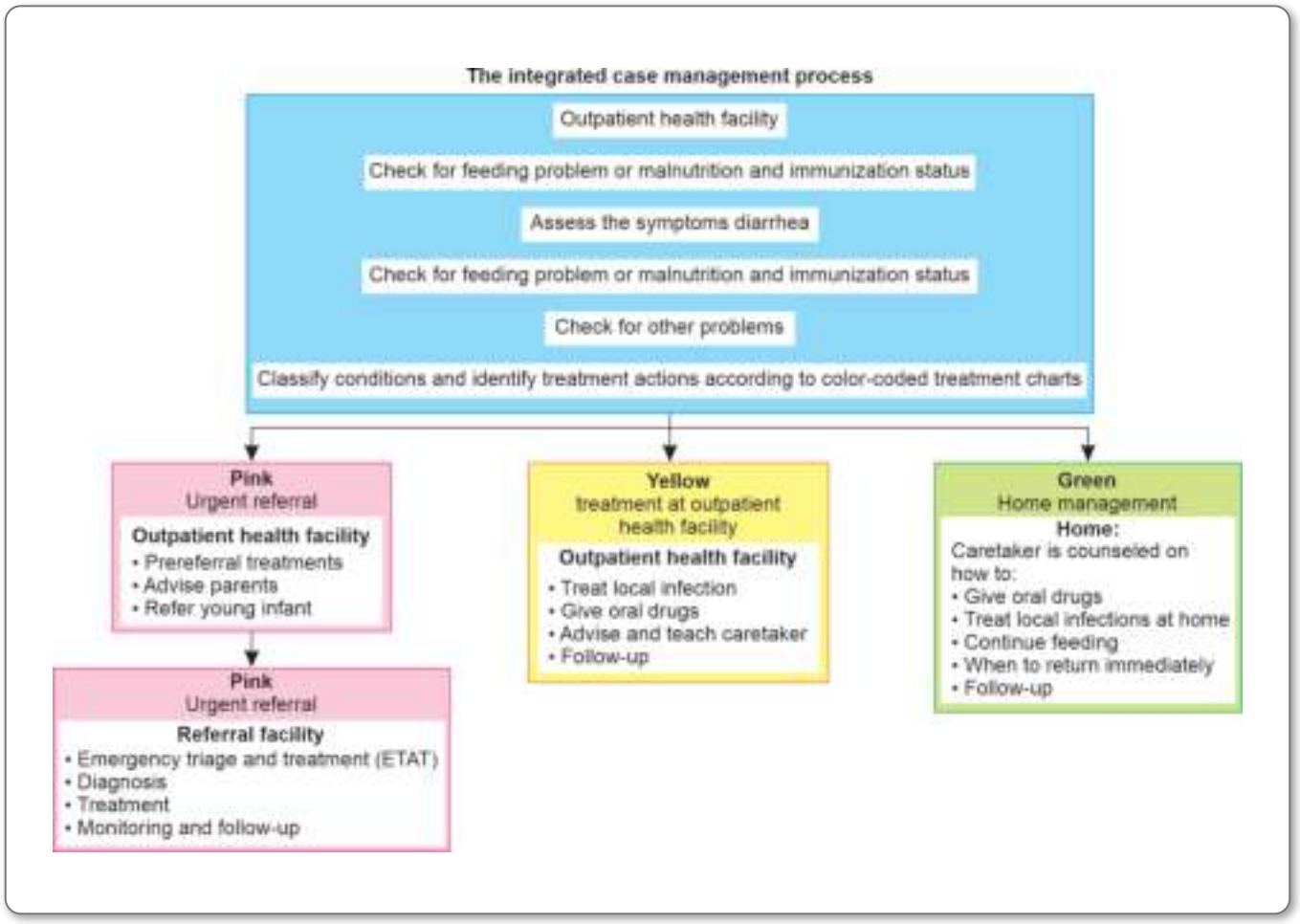
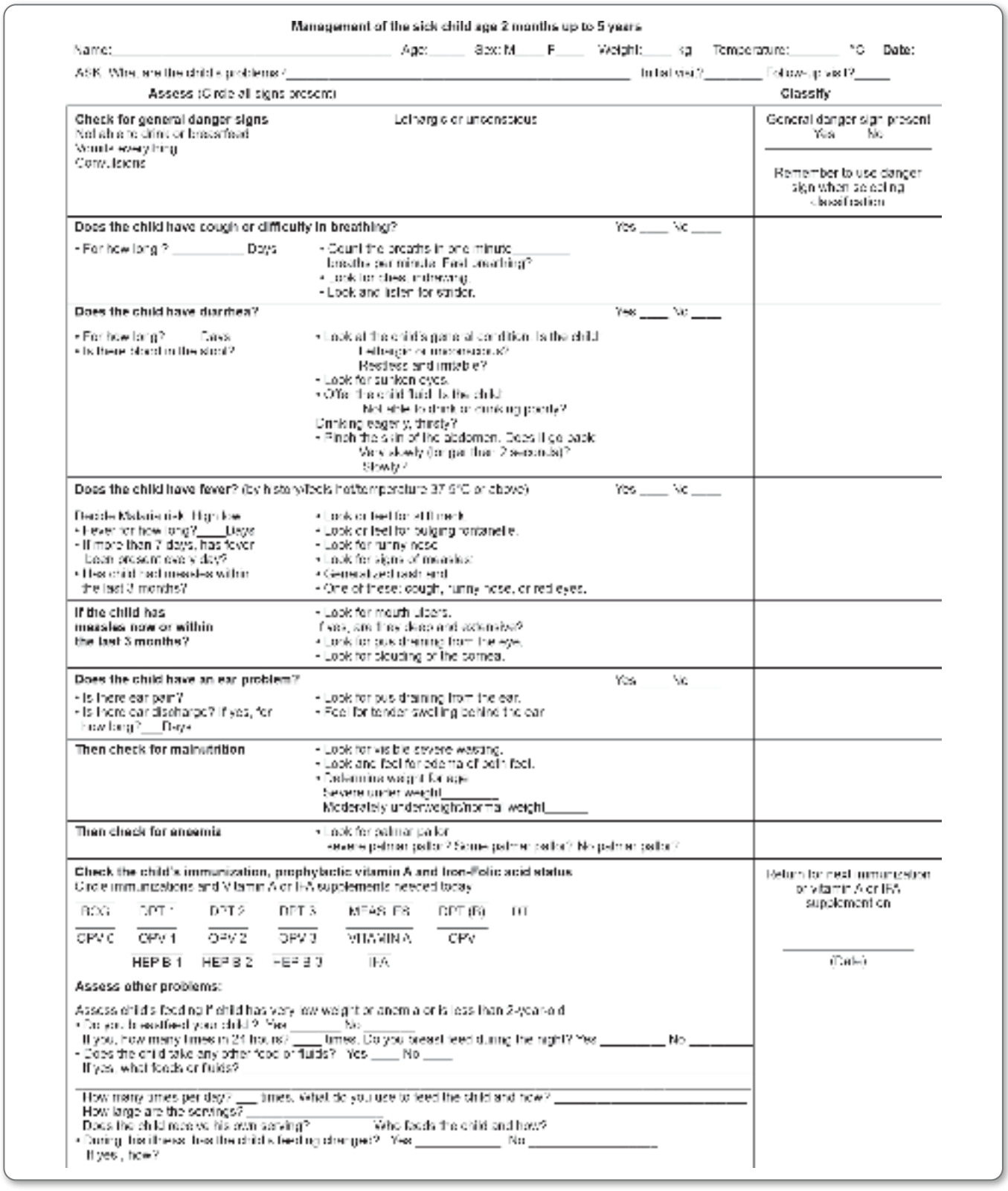


Figure 11.1: IMNCI case management process for sick child age 2 months up to 5 years



Management of the sick child age 2 months up to 5 years

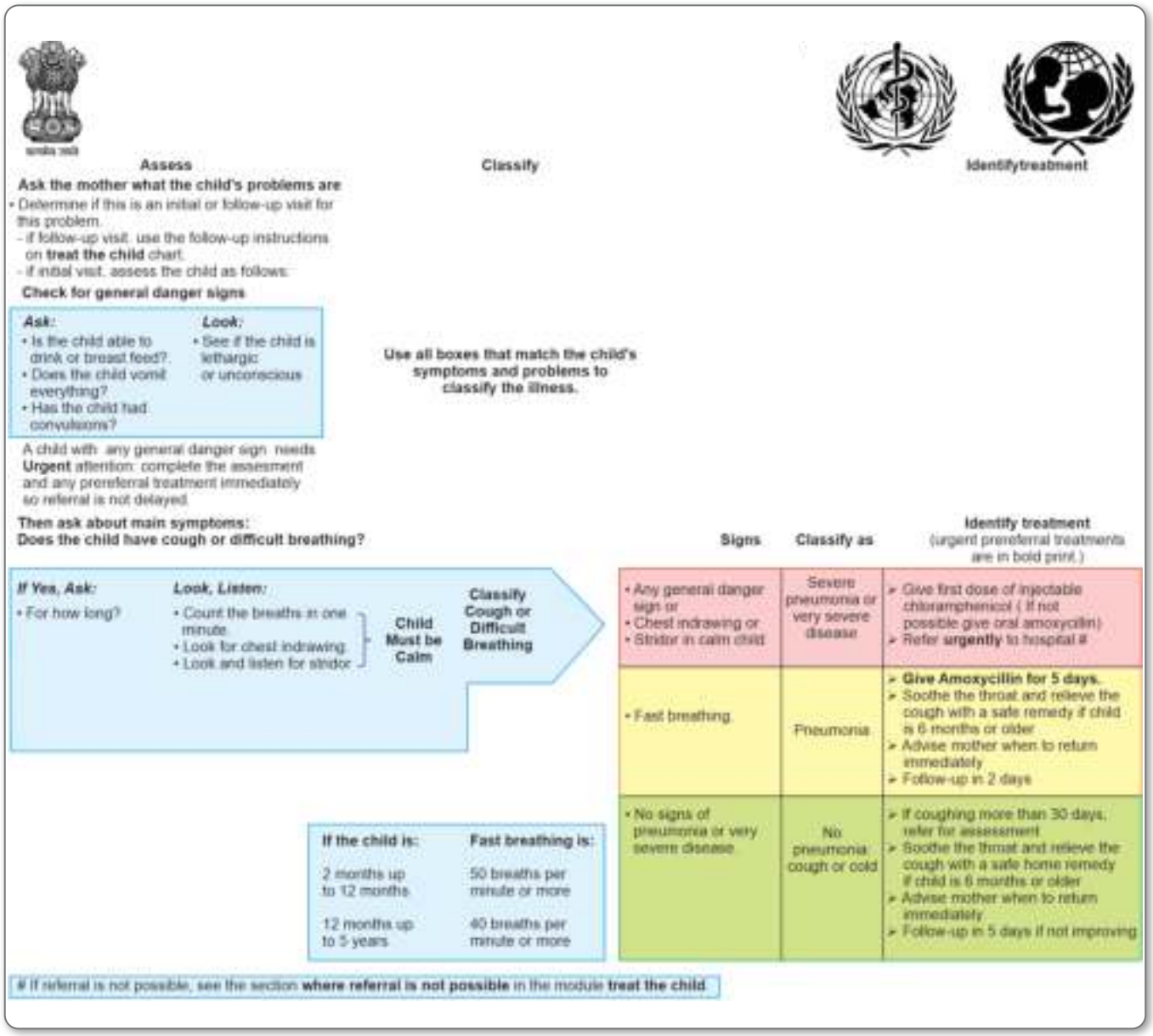
Name: _____ Age: _____ Sex: M ____ F ____ Weight: ____ kg Temperature: _____ °C Date:

ASK: What are the child's problems? _____ Initial visit? _____ Follow-up visit? _____

Assess (Circle all signs present)		Classify
Check for general danger signs Not able to drink or breastfeed Vomits everything Convulsions	Lethargic or unconscious	General danger sign present Yes No Remember to use danger sign when selecting classification
Does the child have cough or difficulty in breathing?	Yes ____ No ____	
- For how long? _____ Days - Count the breaths in one minute _____ Breaths per minute. Fast breathing? - Look for chest indrawing - Look and listen for stridor.		
Does the child have diarrhea?	Yes ____ No ____	
- For how long? _____ Days - Is there blood in the stool? - Look at the child's general condition. Is the child Lethargic or unconscious? Restless and irritable? - Look for sunken eyes. - Offer the child fluid. Is the child Not able to drink or drinking poorly? Drinking eagerly, thirsty? - Pinch the skin of the abdomen. Does it go back Very slowly (longer than 2 seconds)? Slowly?		
Does the child have fever? (By history/feels hot/temperature 37.5°C or above)	Yes ____ No ____	
Decide Malaria risk: High/Low - Fever for how long? ____ Days - If more than 7 days, has fever been present every day? - Has child had measles within the last 3 months?	- Look or feel for stiff neck - Look or feel for bulging fontanelle - Look for runny nose - Look for signs of measles: - Generalized rash and - One of these: cough, runny nose, or red eyes.	
If the child has measles now or within the last 3 months?	- Look for mouth ulcers. Extensive, are they deep and confluent? - Look for pus draining from the eye. - Look for clouding of the cornea.	
Does the child have an ear problem?	Yes No	
- Is there 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 malnutrition	- Look for visible severe wasting. - Look and feel for edema of both feet. - Determine weight for age Severe underweight _____ Moderately underweight/normal weight _____	
Then check for anaemia	- Look for palmar pallor Severe palmar pallor? Some palmar pallor? No palmar pallor?	
Check the child's immunization, prophylactic vitamin A and Iron/Folic acid status Circle immunizations and Vitamin A or IFA supplements needed today BCG DPT 1 DPT 2 DPT 3 MEASLES DPT (B) DT OPV 0 OPV 1 OPV 2 OPV 3 VITAMIN A OPV HEP B 1 HEP B 2 HEP B 3 IFA **Assess other problems:** Assess child's feeding if child has very low weight or anemia or is less than 2 years old - Do you breastfeed your child? Yes _____ No _____ If yes, how many times in 24 hours? ____ times. Do you breastfeed during the night? Yes _____ No _____ - Does the child take any other food or fluids? Yes ____ No ____ If yes, what foods or fluids? How many times per day? ___ times. What do you use to feed the child and how? _____ How large are the servings? _____ Does the child receive his own serving? Who feeds the child and how? - During illness does the child's feeding change? Yes _____ No _____ If yes, how?		Return for next immunization or vitamin A or IFA supplement on _____ (Date)

Figure 11.2: IMNCI case management process for sick young infant

Flowchart 11.1: Assess and classify the sick child age 2 months up to 5 years



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Does the child have diarrhea?

If Yes, Ask:	Look and feel:	Classify Diarrhea			
• For how long? • Is there blood in the stool?	• Look at the child's general condition. Is the child: Lethargic or unconscious? Restless and irritable? • Look for sunken eyes • Offer the child fluid. Is the child: - Not able to drink or drinking poorly? - Drinking eagerly, thirsty? • Pinch the skin of the abdomen. Does it go back: - Very slowly (longer than 2 seconds)? - Slowly?	For dehydration	Two of the following signs: • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly	Severe Dehydration	➢ If child has no other severe classification: - Give fluid for severe dehydration (Plan C) ➢ If child also has another severe classification: Refer urgently to hospital# with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding. ➢ If child is 2 years or older and there is cholera in your area, give doxycycline for cholera
			Two of the following signs: • Restless, irritable • Sunken eyes • Drinks eagerly, thirsty • Skin pinch goes back slowly	Some	➢ Give fluid and food for some dehydration (Plan B) ➢ If child also has a severe classification: Refer **urgently** to hospital# with mother giving frequent sips of ORS on the way. Advise the mother to continue breast feeding. ➢ Advise mother when to return immediately ➢ Follow-up in 5 days if not improving
			Not enough signs to classify as some or severe dehydration	No	➢ Give fluid and food to treat diarrhoea at home (Plan A) ➢ Advise mother when to return immediately ➢ Follow-up in 5 days if not improving
		And if diarrhea 14 days or more	• Dehydration present	Severe persistent diarrhea	➢ Treat dehydration before referral unless the child has another severe classification ➢ Refer to hospital
			• No dehydration	Persistent diarrhea	➢ Advise the mother on feeding a child who has **persistent diarrhea** ➢ Give single dose of vitamin A ➢ Give zinc supplements daily for 14 days ➢ Follow-up in 5 days
		And if blood in stool	• Blood in the stool	Dysentery	➢ **Treat for 5 days with co-trimoxazole** ➢ Follow-up in 2 days

If referral is not possible, see the section **where referral is not possible** in the module **treat the child.**

Contd...

Does the child has fever?
(by history or feels hot or temperature 37.5°C or above)

IF YES:
Decide malaria risk: high low

Then ask:
- Fever for how long?
- If more than 7 days, has fever been present every day?
- Has the child had measles within the last 3 months?

Look and feel:
- Look or feel for stiff neck.
- Look and feel for bulging fontanelle
- Look for runny nose

Look for signs of measles

- Generalized rash and
- One of these: cough, runny nose, or red eyes

If the child has measles now or within the last 3 months:
- Look for mouth ulcers. Are they deep and extensive?
- Look for pus draining from the eye
- Look for clouding of the cornea

High Malaria risk

Classify fever

Low malaria risk

If measles now or within last 3 months, classify

High malaria risk

• Any general danger sign or • Stiff neck or • Bulging fontanelle	Very severe febrile disease	➢ Give first dose of IM quinine after making blood smear ➢ Give first dose of IV or IM chloramphenicol (If not possible, give oral amoxycillin) ➢ Treat the child to prevent low blood sugar ➢ Give one dose of paracetamol in clinic for high fever (temp. 38.5°C or above). > Refer urgently to hospital
• Fever (by history or feels hot or temperature 37.5°C or above)	Malaria	➢ Give oral antimalarials for High malaria risk area after making a blood smear ➢ Give one dose of paracetamol in clinic for high fever (temp. 38.5°C or above) ➢ Advise mother when to return immediately ➢ Follow-up in 2 days if fever persists ➢ If fever is present every day for more than 7 days, refer for assessment

Low malaria risk

• Any general danger sign or • Stiff neck or • Bulging fontanelle	Very severe febrile disease	➢ Give first dose of IM quinine after making a smear ➢ Give first dose of IV or IM chloramphenicol (if not possible, give oral amoxycillin) ➢ Treat the child to prevent low blood sugar ➢ Give one dose of paracetamol in clinic for high fever (temp 38.5°C or above) ➢ Refer urgently to hospital
• No runny nose and No measles and No other cause of fever	Malaria	➢ Give oral antimalarials for low malaria risk area after making a smear ➢ Give one dose of paracetamol in clinic for high fever (temp. 38.5°C or above) ➢ Advise mother when to return immediately ➢ Follow-up in 2 days, if fever persists ➢ If fever is present every day for more than 7 days, refer for assessment
• Runny nose PRESENT or • Measles PRESENT or • Other cause of fever PRESENT**	Fever-malaria unlikely	➢ Give one dose of paracetamol in clinic for high fever (temp. 38.5°C or above) ➢ Advise mother when to return immediately ➢ Follow-up in 2 days if fever persists ➢ If fever is present every day for more than 7 days, refer for assessment
• Any general danger sign or • Clouding of cornea or • Deep or extensive mouth ulcers	Severe complicated measles*	➢ Give first dose of Vitamin A ➢ Give first dose of injectable chloramphenicol (If not possible give oral amoxycillin) ➢ If clouding of the cornea or pus draining from the eye, apply tetracycline eye ointment ➢ Refer urgently to hospital #
• Pus draining from the eye or • Mouth ulcers	Measles with eye or mouth complications*	➢ Give first dose of Vitamin A ➢ If pus draining from the eye, treat eye infection with tetracycline eye ointment ➢ If mouth ulcers, treat with gentian violet ➢ Follow-up in 2 days
• Measles now or with in the last 3 months	Measles	➢ Give first dose of Vitamin A

*This cutoff is for axillary temperatures; rectal temperature cutoff is approximately 0.5°C higher
**Other cause of fever include cough or cold, pneumonia, diarrhea, dysentery and skin infections

*Other important complication of measles - pneumonia, stridor, diarrhea, ear infection, and malnutrition are classified in other tables.

If referral is not possible, see the section where referral is not possible in The module **treat the child**

Contd...

Then check for malnutrition

Look and feel:

- Look for visible severe wasting
- Look for edema of both feet
- Determine weight for age

Classify nutritional status

• Visible severe wasting or • Edema of both feet	Severe malnutrition	➢ Give single dose of Vitamin A ➢ Prevent low blood sugar ➢ Refer urgently to hospital # ➢ While referral is being organized, warm the child ➢ Keep the child warm on the way to hospital
• Not Severely Underweight (<-3SD)	Very low weight	➢ Assess and counsel for feeding ➢ Advise mother when to return immediately ➢ Follow-up in 30 days
• Not very low weight for age and no other sign of malnutrition	Not very low weight	➢ If child is less than 2-years-old, assess the child's feeding and counsel the mother on feeding according to the food box on the **counsel the mother chart** - If feeding problem, follow-up in 5 days ➢ Advise mother when to return immediately

Then check for Anemia

- Look for palmar pallor. Is it:
  - Severe palmar pallor?
  - Some palmar pallor?

Classify anemia

• Severe palmar pallor	Severe anemia	➢ Refer urgently to hospital#
• Some palmar pallor	anemia	➢ Give iron folic acid therapy for 14 days. ➢ Assess the child's feeding and counsel the mother on feeding according to the food box on the Counsel the mother chart. - If feeding problem, follow-up in 5 days. ➢ Advise mother when to return immediately ➢ Follow-up in 14 days.
• No palmar pallor	No anemia	➢ Give prophylactic iron folic acid if child 6 months or older

Then check the child's immunization*, prophylactic vitamin A and iron-folic acid supplementation status

	Age	Vaccine
Immunization Schedule:	Birth	BCG + OPV–0
	6 Weeks	DPT-1+OPV-1(+ HepB-1**)
	10 weeks	DPT-2+OPV-2(+ HepB-2**)
	14 weeks	DPT-3+OPV-3(+ HepB-3**)
	9 months	Measles
	16–18 months	DPT booster + OPV
	60 months	DT

Prophylactic Vitamina A
Give a single dose of vitamin A:
100,000 IU at 9 months with measles immunization
200,000 IU at 16–18 months with DPT Booster
200,000 IU at 24 months
200,000 IU at 30 months
200,000 IU at 36 months

Prophylactic IFA

Give 20 mg elemental iron + 100 mcg folic acid (one tablet of Pediatric IFA or 5 mL of IFA syrup or 1 Ml of IFA drops) for a total of 100 days in a year after the child has recovered from acute illness if
- The child 6 months of age or older, and
- Has not recieved Pediatric IFA Tablet/syrup/ drops for 100 days in last one year

* A child who needs to be immunized should be advised to go for immunization the day vaccines are available at AWSC/PHC
**Hepatitis B to be given wherever included in the immunization schedule

Assess other problems

Make sure child with any general danger sign is referred after first dose of an appropriate antibiotic and other urgent treatments
Exception: rehydration of the child according to plan C may resolve danger signs so that referral is no longer needed.

If referral is not possible, see the section **where referral is not possible** in the module **treat the child**

Treat the Child

Give these treatments in clinic only

➢ **Give an intramuscular antibiotic**

For children being referred urgently:
- ➢ Give first dose of intramuscular chloramphenicol and refer child urgently to hospital

If referral is not possible:
- ➢ Repeat the chloramphenicol injection every 12 hours for 5 days.
- ➢ Then change to an appropriate oral antibiotic to complete 10 days of treatment.

Age or weight	Chloramphenicol Dose: 40 mg per kg Add 5.0 mL sterile water to vial containing 1000 mg = 5.6 mL at 180 mg/mL
2 months up to 4 months (4 – <6 kg)	1.0 mL = 180 mg
4 months up to 9 months (6 – <8 kg)	1.5 mL = 270 mg
9 months up to 12 months (8 – <10 kg)	2.0 mL = 360 mg
12 months up to 3 years (10 – <14 kg)	2.5 mL = 450 mg
3 years up to 5 years (14 – 19 kg)	3.5 mL = 630 mg

➢ **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 referral is not possible:
- ➢ Give first dose of intramuscular quinine.
- ➢ The child should remain lying down for 1 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 quinine. Do not continue quinine injections for more than 7 days.
- ➢ If low risk of malaria do not give quinine to a child less than 4 months of age.

Age or weight	Intravenous or intramuscular quinine	
	150 mg/mL* (in 2 mL ampoules)	300 mg/mL* (in 2 mL ampoules)
2 months up to 4 months (4 – <6 kg)	0.4 mL	0.2 mL
4 months up to 12 months (6 – <10 kg)	0.6 mL	0.3 mL
12 months up to 2 months (10 – <12 kg)	0.8 mL	0.4 mL
2 months up to 3 years (12 – <14 kg)	1.0 mL	0.5 mL
3 years up to 5 years (14 – 19 kg)	1.2 mL	0.6 mL

➢ **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 or weight	First give 30 mL/kg in:	Then give 70 mL/kg in:
Infants (under 12 months)	1 hour*	5 hours
Children (12 months up to 5 years)	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

↓ 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 nasogastric (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 → (same as above)

↓ No

Refer urgently to hospital for IV or NG treatment
- 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.

Teach the mother to give oral drugs at home

Follow the instructions below for every oral drug to be given at home. Also follow the instructions listed with each drug's dosage table.

➢ Give an appropriate oral antibiotic

➢ For pneumonia, acute ear infection (or for very severe disease if injectable chloramphenicol is not available):

First-line antibiotic: Co-trimoxazole
Second-line antibiotic: Amoxycillin

Age or weight	Co-trimoxazole (trimethoprim + sulfamethoxazole) ➢ Give two times daily for 5 days			Amoxycillin ➢ Give three times daily for 5 days	
	Adult tablet (1 tablet = trimethoprim + 400 mg sulfamethoxazole)	Pediatric tablet (1 tablet = trimethoprim + 100 mg sulfamethoxazole)	Syrup (5 mL = trimethoprim + 200 mg sulfamethoxazole per 5 mL)	Tablet (250 mg)	Syrup (125 mg per 5 mL)
2 months up to 12 months (4– <10 kg)	½	2	5.0 mL	½	5 mL
12 months up to 5 years (10–19 kg)	1	3	7.5 mL	1	10 mL

➢ Oral amoxycillin can be given in very severe disease if it is not possible to administer injectable chloramphenicol.

➢ For dysentery:
First-line antibiotic for shigella: Co-trimoxazole*
Second-line antibiotic for shigella: Nalidixic acid

Age or weight	Co-trimoxazole (trimethoprim + sulphamethoxazole) ➢ Give two times daily for 5 days		Nalidixic acid ➢ Give four times daily for 5 days	
	See doses above		Tablet 500 mg	Syrup 250 mg per 5 mL
2 months up to 4 months (4– <6 kg)			1/8	1.25 mL
4 months up to 12 months (6– <10 kg)			1/4	2.5 mL
12 months up to 5 years (10–19 kg)			1/2	5.0 mL

* Give appropriate antibiotic depending upon local sensitivity/policy

➢ For cholera: Give single dose doxycycline

Age or weight	Doxycycline (1 dose)	
	Tablet 100 mg	Capsule 50 mg
2 years up to 4 years (10–14 kg)	1/2	1
4 years to 9 years (15–19 kg)	1	2

➢ Give paracetamol for high fever (≥ 38.5°C) or ear pain

➢ Give a single dose of paracetamol in the clinic.
➢ Give a solid oral dose of paracetamol for use at home every 6 hours until high fever or ear pain is gone.

Age or weight	Paracetamol	
	Tablet (100 mg)	Tablet (500 mg)
2 months up to 9 years (4– <14 kg)	1	½
9 years up to 9 years (14– <19 kg)	1 or 1½	½

➢ Give Zinc

➢ For persistent diarrhea, give zinc sulphate (20 mg elemental zinc) daily for 14 days.

Zinc tablet	Zinc syrup
tablet	10 mL

➢ Give Vitamin A

➢ Give a single dose in the clinic in persistent diarrhea and severe malnutrition.
➢ Give two doses in measles (give first dose in clinic and give mother one dose to give at home the next day).

Age	Vitamin A syrup
	100,000 IU/2 mL
Up to 6 months	0.5 mL
6 months up to 12 months	1 mL
12 months up to 5 years	2 mL

➢ Give iron and folic acid therapy

➢ Give one dose daily for 14 days.

Age or weight	IFA pediatric tablet (1 tablet = 22.5 mg iron + 0.25 mg folic acid + 100 mg elemental iron)	IFA syrup (1 tablet = 100 mg iron + 0.5 mg folic acid per 5 mL (20 mg elemental iron per mL))	IFA drops (1 tablet = 20 mg elemental iron + 0.2 mg folic acid per 1 mL)
2 months up to 4 months (4– <6 kg)		1.25 mL (¼ tablet)	½ to 1 mL
4 months up to 12 months (6– <10 kg)	¼ tablet	2.5 mL (½ tablet)	1 to 1½ mL
12 months up to 3 years (10– <14 kg)	½ tablet	5.00 mL (1 tablet)	1½ to 2 mL
3 years up to 5 years (14–19 kg)	1 tablet	7.5 mL (1½ tablet)	2 to 3 mL

Teach the Mother to Oral Drugs at Home

Follow the instructions below for every oral drug to be given at home. Also follow the instructions listed with each drugs's dosage table.

➢ Give Oral Antimalarials for high malaria risk areas

First-line antimalarial: Chloroquine
Second-line antimalarial: Sulphadoxine (or sulpha drug) plus pyrimethamine*

*First-line treatment in areas with high resistance to chloroquine

➢ Presumptive treatment: Give to all children classified as malaria for 3 days

Age	Day 1			Day 2		Day 3	
	Chloroquine		Primaquine	Chloroquine		Chloroquine	
	Tablet (150 mg base)	Syrup (50 mg base per 5 mL)	Tablet (2.5 mg base)	Tablet	Syrup	Tablet	Syrup
2 months up to 12 months (4–<10 kg)	1/2	7.5 mL	0	1/2	7.5 mL	1/4	4 mL
12 months up to 5 year (10–19 kg)	1	15 mL	1	1	15 mL	1/2	7.5 mL

- Explain to the mother that she should watch her child carefully for 30 minutes after giving a dose of chloroquine. If the child vomits within 30 minutes she should repeat the dose.
- Explain that itching is a possible side effect of the drug, but is not dangerous.

➢ Radical treatment: Give only if blood smear is P.vivax positive; no radical treatment is required if P. falciparum alone positive

Age	Daily dose for 5 days
	Primaquine Tablet 2.5 mg base
2 months up to 12 months (4–<10 kg)	0
12 months up to 5 year (10–19 kg)	1

*Primaquin should not be given to children up to 1 year and during pregnancy.

Second-line antimalarial:

Age	Sulpha (500 mg)-pyrimethamine (25 mg) tablet single dose
2 months up to 12 months (4–<10 kg)	1/4
12 months up to 5 year (10–19 kg)	1

➢ Give oral antimalarials for low malaria risk areas

First-line antimalarial: Chloroquine
Second-line antimalarial: Sulfadoxine (or sulfisoxazole) plus pyrimethamine*

*First-line treatment in areas with high resistance to chloroquine

➢ Presumptive treatment: Give to all children classified as malaria for 1 day

Age	Day 1	
	Chloroquine	
	Tablet (150 mg base)	Syrup (50 mg base per 5 mL)
2 months up to 12 months (4–<10 kg)	1/2	7.5 mL
12 months up to 5 year (10–19 kg)	1	15 mL

➢ Radical treatment: Give only if smear is positive for malarial parasite

If blood smear is P.falciparum positive

AGE	Single dose of		
	Chloroquine		Primaquin
	Tablet (150 mg base)	Syrup (50 mg base per 5 mL)	Tablet (2.5 mg base)
2 months up to 12 months (4–<10 kg)	1/2	7.5 mL	0
12 months up to 5 year (10–19 kg)	1	15 mL	1

If blood smear is P.vivax positive

Age	Chloroquine single dose		Primaquin daily dose for 5 days
	Tablet (150 mg base)	Syrup (50 mg base per 5 mL)	Tablet (2.5 mg base)
2 months up to 12 months (4–<10 kg)	1/2	7.5 mL	0
12 months up to 5 year (10-19 kg)	1	15 mL	1

➢ Second-line antimalarial:

Age	Sulpha (500 mg)-pyrimethamine (25 mg) tablet single dose
2 months up to 12 months (4–<10 kg)	1/4
12 months up to 5 year (10–19 kg)	1

Teach the mother to treat local infections at home

Soothe the throat, relieve the cough with a safe remedy if the infant is 6 months or older

- Safe remedies to recommend
  - Continue breastfeeding
  - Honey, tulsi, ginger, herbal teas and other safe local home remedies
- Harmful remedies to discourage
  - Preparations containing sedatives, codeine, antihistamine and atropine

Treat eye infection with tetracycline eye ointment

- Clean both eyes three times daily:
  - Wash hands.
  - Ask child to close the eye.
  - Use clean cloth and water to gently wipe away pus.
- Then apply tetracycline eye ointment in both eyes. Three times daily:
  - Ask the child to look up.
  - Squirt a small amount of ointment on the inside of the lower lid.
  - Wash hands again.
- Treat until redness is gone.
- Do not use other eye ointments or drops, or put anything else in the eye.

Dry the ear by wicking

- Dry the ear at least three times daily
  - Roll clean absorbent cloth or soft, strong tissue paper into a wick.
  - Place the wick in the young infant's ear.
  - Remove the wick when wet.
  - Replace the wick with a clean one and repeat these steps until the ear is dry.

Give Extra Fluid FOR Diarrhea

Plan B: Treat some dehydration with ORS

Give the clinic recommended amount of ORS over 4-hour period

- Determine amount of ORS to give during first 4 Hours

AGE*	Up to 4 months	4 months up to 12 months	12 months up to 2 years	2 years up to 5 years
weight	<6 kg	6 – <10 kg	10 – <13 kg	13 – 15 kg
In ml	200 – 450	450 – 700	700 – 900	900 – 1200

* Use the child's age only when you do not know the weight. The approximate amount of ORS required in ml can also be calculated by multiplying the child's weight (in kg) times 75.

- If the child wants more ORS than shown, give more.
- For infants under 6 months who are not breastfed, also give 100–200 mL clean water during this period.

- Show the mother how to give ors solution.
  - Give frequent small sips from a cup.
  - If the child vomits, wait 10 minutes. Then continue, but more slowly.
  - Continue breastfeeding whenever the child wants.

- After 4 hours:
  - Reassess the child and classify the child for dehydration.
  - Select the appropriate plan to continue treatment.
  - Begin feeding the child in clinic.

- If the mother must leave before completing treatment:
  - Show her how to prepare ORS solution at home.
  - Show her how much ORS to give to finish 4 hour treatment at home.
  - Give her enough ORS packets to complete rehydration. Also give her two packets as mentioned in Plan A.
  - Explain the three rules of home treatment.

1. Give extra fluid
2. Continue feeding
3. When to return

} So plan A is recommended for ... as Counsel the mother on ...

Give extra fluid for diarrhea and continue feeding

(See food advice on counse the mother chart)

➢ **Plan A: Treat diarrhea at home**

Counsel the mother on the three rules of home treatment: Give extra fluid, continue feeding, when to return

1. Give extra fluid (as much as the child will take)

➢ **Tell the mother:**

- If the child is exclusively breastfed: Breastfeed frequently and for longer at each feed. If passing frequent watery stools:
  - For less than 6 months age give ORS and clean, preferably boiled, water in addition to breast milk.
  - If 6 months or older give one or more of the home fluids in addition to breast milk.
- If the child is not exclusively breastfed: Give one or more of the following home fluids: ORS solution, yoghurt drink, milk, lemon drink, rice or pulses-based drink, vegetable soup, green coconut water or plain clean water,

It is especially important to give ORS at home when:

- The child has been treated with Plan B or Plan C during this visit.
- The child cannot return to a clinic if the diarrhea gets worse.

➢ **Teach the mother how to mix and give ORS. Give the mother two packets of ORS to use at home.**

➢ **Show the mother how much fluid to give in addition to the usual fluid intake:**

Up to 2 years	50 – 100 mL after each loose stool
2 years or more	100 – 200 mL after each loose stool

Tell the mother to:

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

2. Continue feeding
3. When to return } See counse the mother chart

Immunize every sick child, as needed

Counsel the Mother

Food

➢ ***Assess the child's feeding***

Ask questions about the child's usual feeding and feeding during this illness. Compare the mother's to the feeding recommendations for the child's age in the box below.

Ask- ➢ Do you breastfeed your child

- How may times during the day?
- Do you also breastfeed during the night?

➢ Does the child take any other food or fluids?

- What food or fluids?
- How many times per day?
- What do you use to feed the child?
- How large are servings? Does the child receive his own serving? Who feeds the child and how?

➢ During this illness, has the child's feeding changed? If yes, how?

Counsel the Mother

➢ **Feeding recommendations during sickness and health**

Up to 6 months of age 	6 months up to 12 months 	12 Months up to 2 years 	2 Years and older 
• Breast feed as often as the child wants, day and night, at least 8 times in 24 hours • Do not give any other foods or fluids not even water	• Breast feed as often as the child wants • Give at least one katori serving* at a time of : - Mashed roti/rice/bread/biscuit mixed in sweetened undiluted milk or - Mashed roti/rice/bread mixed in thick dal with added ghee/oil or khichri with added oil/ghee, add cooked vegetables also in the servings or - Sevian/dalia/halwa/kheer prepared in milk or any cereal porridge cooked in milk or - Mashed boiled/fried potatoes - Offer banana/biscuit/cheeko/mango/papaya *3 times per day if breastfed; 5 times per day if not breastfed.	• Breastfeed as often as the child wants • Offer food from the family pot • Give at least 1½ katori serving* at a time of : - Mashed roti/rice/bread mixed in thick dal with added ghee/oil or khichri with added oil/ghee, add cooked vegetables also in the servings or - Mashed roti/rice/bread/biscuit mixed in sweetened undiluted milk or - Sevian/dalia/halwa/kheer prepared in milk or any cereal porridge cooked in milk or - Mashed boiled/fried potatoes - Offer banana/biscuit/cheeko/mango/papaya • 5 times per day.	• Give family foods at three meals each day. • Also, twice daily, give nutritious food between meals, such as: banana/biscuit/cheeko/mango/papaya as snacks
Remember: • Continue breastfeeding if the child is sick	**Remember:** • Keep the child in your lap and feed with your own hands • Wash your own and child's hands with soap and water every time before feeding	**Remember:** • Sit by the side of child and help him to finish the serving • Wash your child's hands with soap and water every time before feeding	**Remember:** • Ensure that the child finishes the serving • Teach your child wash his hands with soap and water every time before feeding

Feeding recommendations for a child who has persistent diarrhea

- If still breast feeding, give more frequent, longer breast feeds, day and night.
- If taking other milk:
  - Replace with increased breast feeding or
  - Replace with fermented milk products, such as yoghurt or replace half the milk with nutrient-rich semisolid food.
  - Add cereals to milk (Rice, Wheat, Semolina)
- For other foods, follow feeding recommendations for the child's age.

➢ **Counsel the mother about feeding problems**
If the child is not being fed as described in the above recommendations, counsel the mother accordingly. In addition:

➢ If the mother reports difficulty with breastfeeding, assess breastfeeding. (See **young infant** chart.)
As needed, show the mother correct positioning and attachment for breast feeding.

➢ If the child is less than 6 months old and is taking other milk or foods:

- Build mother's confidence that she can produce all the breastmilk that the child needs.
- Suggest giving more frequent, longer breastfeeds day or night, and gradually reducing other milk or foods.

➢ If other milk needs to be continued, counsel the mother to:

- Breast feed as much as possible, including at night.
- Make sure that other milk is a locally appropriate dairy/animal milk .
- Make sure other milk is correctly and hygienically prepared and given in adequate amounts.
- Finish prepared milk within an hour.

➢ **If the mother is using a bottle to feed the child:**

- Recommend substituting a cup for bottle.
- Show the mother how to feed the child with a cup.

➢ **If the child is not being fed actively, counsel the mother to:**

- Sit with the child and encourage eating.
- Give the child an adequate serving in a separate plate or bowl.

➢ **If the child is not feeding well during illness, counsel the mother to:**

- Breast feed more frequently and for longer if possible
- Use soft, varied, appetizing, favourite food to encourage the child to eat as much as possible, and offer frequent small feedings
- Clear a blocked nose if it interferes with feeding
- Expect that appetite will improve as child gets better.

➢ **Follow-up any feeding problem in 5 days.**

Fluid

➢ **Advise the mother to increase fluid during illness**

For any sick child:

➢ Breast feed more frequently and for longer at each feed.
➢ Increase fluid, for example, give soup, rice water, yoghurt drinks or clean water.

For child with diarrhea:

➢ Giving extra fluid can be lifesaving. Give fluid according to plan A or plan B on treat the child chart.

➢ **Advise the mother when to return to health worker**

Follow-up visit

Advise the mother to come for follow-up at the earliest time listed for the child's problems.

If the child has:	Return for follow-up in:
Pneumonia dysentery, malaria, if fever persists fever-malaria unlikely, if fever persists measles with eye or mouth complications	2 days
Diarrhea, if not improving Persistent diarrhea Acute ear infection Chronic ear infection Feeding problem Any other illness, if not improving	5 days
Anemia	14 days
Very low weight for age	30 days

When to return immediately

Advise mother to return immediately if the child has any of these signs:	
Any sick child	• Not able to drink or breast feed • Becomes sicker • Develops a fever
If child has no pneumonia: Cough or cold, also return if:	• Fast breathing • Difficult breathing
If child has diarrhea, also return if:	• Blood in stool • Drinking poorly

Next well-child visit

Advise mother when to return for next immunization according to immunization schedule.

Give follow-up care for the sick child

➢ Care for the child at home for follow-up as well as for issues that made the child's previous classifications.
➢ If the child has any new problem, assess, classify and treat the new problem as on the assess and classify chart.

➢ **Pneumonia**

After 2 days:

Check the child for general danger signs. → See assess and classify chart.
Assess the child for cough or difficult breathing.
Ask:
- Is the child breathing slower?
- Is chest in drawing less?
- Is the child eating better?

Treatment:

➢ If chest in drawing or a general danger sign, give a dose of second-line antibiotic or intramuscular chloramphenicol. Then refer urgently to hospital.

➢ If breathing rate, fever and eating are the same, change to the second-line antibiotic and advise the mother to return in 2 days or refer. If the child had measles within the last 3 months, refer.

➢ If breathing slower, less fever, or eating better, complete the 5 days of antibiotic.

➢ **Persistent diarrhea**

After 5 days:

Ask:
- Has the diarrhea stopped?
- How many loose stools is the child having per day?

Treatment:

➢ If the diarrhea has not stopped (child is still having 3 or more loose stools per day), do a full reassessment of the child. Give any treatment needed. Then refer to hospital.

➢ If the diarrhea has stopped (child having less than 3 loose stools per day), tell the mother to follow the usual feeding recommendations for the child age. Continue oral zinc for a total of 14 days.

➢ **Diarrhea**

After 5 days:

Ask:
- Has the diarrhea stopped?
- How many loose stools is the child having per day?

Treatment:

➢ If the child is persistent, assess the child for the new problem. See assess and classify chart and manage as an initial visit.

➢ If diarrhea has stopped (child having less than 3 loose stools per day), tell the mother to follow the usual feeding recommendations for the child age.

➢ **Dysentery**

After 2 days:

Assess the child for diarrhea. → See assess and classify chart.
Ask:
- Are there fewer stools?
- Is there less blood in the stool?
- Is there less fever?
- Is there less abdominal pain?
- Is the child eating better?

Treatment:

➢ If the child is dehydrated, treat dehydration.
If number of stools, amount of blood in stools, fever, abdominal pain, or eating is the same or worse:

Change to second-line oral antibiotic recommended for shigella in your area.
Give it for 5 days. Advise the mother to return in 2 days.

Exceptions: If the child:
- is less than 12 months old, or
- had measles within the last 3 months

} Refer to hospital

➢ If fewer stools, less blood in the stools, less fever, less abdominal pain, and eating better, continue giving the same antibiotic until finished.

➢ If number of stools, amount of blood in stools, fever, abdominal pain, or eating is the same or worse after treatment with nalidixic acid/second-line oral, refer to hospital.

GIVE FOLLOW-UP CARE

- Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.
- If the child has any new problem, assess, classify and treat the new problem as on the ASSESS AND CLASSIFY chart.

Malaria (Low or High Malaria Risk)

If fever persists after 2 days, or returns within 14 days:

Do a full reassessment of the child. > See *ASSESS and CLASSIFY* chart.
Assess for other causes of fever.

Treatment:

- If the child has *any general danger sign or stiff neck*, treat as VERY SEVERE FEBRILE DISEASE.
- If the child has *any cause of fever other than malaria*, provide treatment.
- If *malaria is the only apparent cause of fever:*
  - Treat with the second line oral antimalarial. If no second line antimalarial is available, refer to hospital. Advise the mother to return again in 2 days if the fever persists. Continue Paracetamol if prescribed.
  - If fever has been present for 7 days, refer for assessment.

Measles with eye or mouth complications

After 2 days:
Look for red eyes and pus draining from the eyes.
Look at mouth ulcers.
Check for foul smell from the mouth.

Treatment for Eye Infection:
- If *pus is draining from the eye*, ask the mother to describe how she has treated the eye infection. If treatment has been correct, refer to hospital. If treatment has not been correct, teach mother correct treatment.
- If *the pus is gone but redness remains*, continue the treatment.
- If *no pus or redness*, stop the treatment.

Treatment for Mouth Ulcers:
- If *Mouth ulcers are severe, or there is a very foul smell from the mouth*, refer to hospital.
- If mouth ulcers are the same or better, continue using half strength gentian violet for a total of 5 days.

Fever-malaria unlikely (Low malaria risk)

If fever persists after 2 days:

Do a full reassessment of the child. > See *ASSESS and CLASSIFY* chart.
Assess for other causes of fever.

Treatment:
- If the child has *any general danger sign or stiff neck*, treat as VERY SEVERE FEBRILE DISEASE.
- If the child has *any cause of fever other than malaria*, provide treatment.
- If *malaria is the only apparent cause of fever:*
  - Treat with the first line oral antimalarial. Advise the mother to return again in 2 days if the fever persists.
  - If fever has been present for 7 days, refer for assessment.

Ear infection

After 5 days:

Reassess for ear problem. > See *ASSESS and CLASSIFY* chart.
Measure the child's temperature.

Treatment:
- If there is *tender swelling behind the ear or high fever (39.5°C or above)*, refer URGENTLY to hospital.
- *Acute ear infection:* If ear pain or discharge persists, treat with 5 more days of the same antibiotic. Continue wicking to dry the ear, follow up in 5 days.
- *Chronic ear infection:* Check that the mother is wicking the ear correctly. If ear discharge persists, refer to hospital for assessment. If no improvement, refer to hospital for assessment.
- If *no ear pain or discharge*, praise the mother for her careful treatment. If she has not yet finished the 5 days of antibiotic, tell her to use all of it before stopping.

Give follow-up care

- Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.
- If the child has any new problem, assess, classify and treat the new problem as on the *ASSESS AND CLASSIFY* chart.

Feeding problem

After 5 days:
Reassess feeding. > See questions at the top of the counsel chart.
Ask about any feeding problems found on the initial visit.

- Counsel the mother about any new or continuing feeding problems. If you counsel the mother to make significant changes in feeding, ask her to bring the child back again.
- If the child is very low weight for age, ask the mother to return 30 days after the initial visit to measure the child's weight gain.

Anemia

After 14 days:

- Give iron folic acid. Advise mother to return in 14 days for more iron folic acid.
- Continue giving iron folic acid every 14 days for 2 months.
- If the child has palmar pallor after 2 months, refer for assessment.

Very low weight

After 30 days:

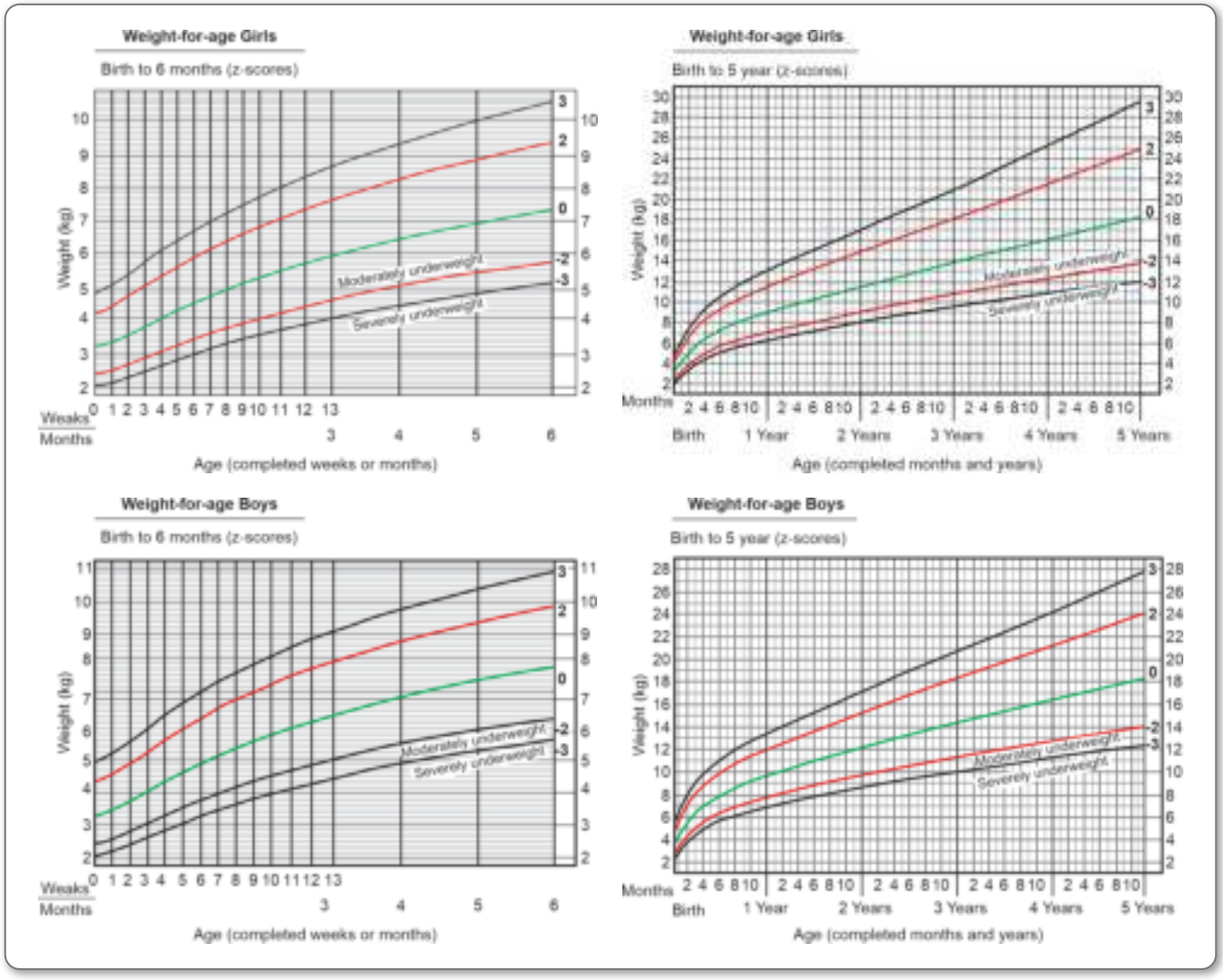
Weigh the child and determine if the child is still very low weight for age. Reassess feeding. > See questions at the top of the counsel chart.

Treatment:

- If the child is *no longer very low weight for age*, praise the mother and encourage her to continue.
- If the child is *still very low weight for age*, counsel the mother about any feeding problem found. Ask the mother to return again in one month. Continue to see the child monthly until the child is feeding well and gaining weight regularly or is no longer very low weight for age.

Exception:

If you do not think that feeding will improve, or if the child has *lost weight*, refer the child.



REFERENCE

Integrated Management of Neonatal and Childhood Illness. Training Modules for Physicians. Ministry of Health and Family Welfare, Govt. of India, 2003.

Summary

Providing quality care to sick children in conditions like diarrhea, pneumonia and malnutrition is important. Experience and scientific evidence shows that improvement in child health are not necessarily dependent on the use of sophisticated and expensive technologies, but rather on effective strategies that are based on a holistic approach, are available to the majority of those in need, and which takes into account the capacity and structure of health systems, as well as traditions and beliefs in the community.

Assess Yourself

1. Discuss the Plan C of dehydration management for a child aged 3 years.
2. Name the medicines given in the treatment of – pneumonia, dysentery, cholera, eye infection, malaria and anemia.
3. Full form of IMNCI is .....
4. The color coding used in IMNCI is ....., ... and .....
5. Discuss the principles of IMNCI.

Note