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LG #34

LO #1- Plan and monitor child, survival, growth and development activities

Instruction sheet Assessing and planning activities related to child survival

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

Assess and plan activities related to child survival

- Documenting all children
- Communicating and demonstrating child feeding practices
- Infection prevention
- Demonstrating Communicating with children and playing mechanisms
- Developmental and growth pattern milestones

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Assess and plan activities related to child survival
- Document all children in the catchment area for age specific services.
- Communicate and demonstrate child feeding practices to the care givers

- Apply infection prevention
- Demonstrate Communicating with children and playing mechanisms to the care givers
- Developmental and growth pattern milestones

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-checks” which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to “Operation sheets
7. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,
8. If your performance is satisfactory proceed to the next learning guide,
9. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.





Information Sheet 1- Assessing and planning activities related to child survival

Introduction

Every year about 9 million children in developing countries die before they reach their fifth birthday, many of them during the first year of life. Ethiopia has one of the highest under-five mortality rates with more than 321,000 children under the age of five dying every year. More than 70% of these child deaths are due to five diseases, namely pneumonia, diarrhoea, malaria, measles and malnutrition, and often to a combination of these conditions.

Health statistics show that world- wide about 4 million newborn babies die each year; another 4 million babies each year are stillborn; most die in late pregnancy or labour and most newborn deaths occur in developing countries. The same statistics show that about two-thirds of deaths in the first year of life occur in the first month of life; of those who die in the first month, about two-thirds die in the first week of life and of those who die in the first week, two-thirds die in the first 24 hours of life.

Eighty-five percent of newborn deaths are due to **three** main causes:-

Infection , **birth asphyxia**, and **complications of prematurity and low birth weight (LBW)**. In addition to the direct causes of death, many newborns die because of their mother's poor health, or because of lack of access to essential care. Sometimes the family may live hours away from a referral facility or there may not be a skilled health worker in their community. The newborn child is extremely vulnerable unless he or she receives appropriate basic care, also called essential newborn care. When newborns don't receive this essential care, they quickly fall sick and too often they die.

For premature or LBW babies, the danger is even greater.



Operation sheet 1- Demonstrate assessing a child

Information Sheet 1- Documenting all children in the catchment area for age specific services



Self-check 1	Written test/Demonstration
Operation sheet 2- Document all children at health post	

When you have studied this session, you should be able to:

- 1.1 Define and use correctly all of the key words printed in bold.
- 1.2 Demonstrate how to assess a child.
- 1.3 Describe general danger sign (GDS).
- 1.4 Summarize the main steps of the IMNCI assessment.

When you are assessing a sick child, a combination of individual signs leads to one or more classifications, rather than to a diagnosis.

Assessing the children is due to different reasons. Among this

- To reduce **mortality** and morbidity associated with the major causes of disease in children less than five years of age, and
- .to contribute to the healthy growth and development of children

They include methods for assessing signs that indicate severe disease; assessing a child’s nutrition, immunization and feeding; teaching parents how to care for a child at home; counseling parents to solve feeding problems; and advising parents about when to return to a health facility. The guidelines also include recommendations for checking the parents’ understanding of the advice given and for showing them how to administer the first dose of treatment.

Assessing a child for survival begins during ANC follow up,during delivery and postnatal care.When ever during delivery there are eight steps to follow.

Before you look at the eight steps of essential newborn care (ENC) you need to remember the importance of the ‘three cleans’ of the Labour and Delivery Care Module. These are **clean hands**, **clean surface** and **clean equipment**. There are eight steps for new born care

Step 1. Deliver the baby onto the mother’s abdomen or a dry warm surface close to the mother. Continue to support and reassure the mother.

Step 2. Dry the baby’s body with a dry warm towel as you try to stimulate breathing. Wrap the baby with another dry warm cloth and cover the head.

Step 3. Assess breathing and colour, if not breathing, gasping or there are less than 30 breaths per minute, then resuscitate and assess its breathing.

If a baby is breathing normally, both sides of the chest will rise and fall equally at around **30–60** times per minute.

Thus, check if the baby is:

- .Breathing normally
- .Having trouble breathing
- . Breathing less than 30 breaths per minute, or . Not breathing at all.

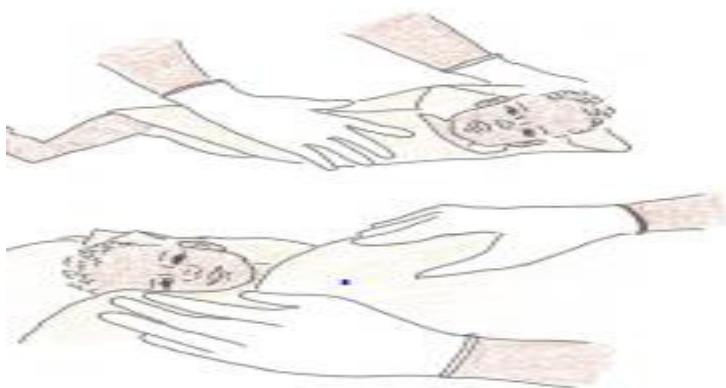


Figure 2.1 Drying and wrapping the newborn baby.

If the baby needs resuscitation, **quickly clamp or tie and cut the cord**, leaving a stump at least **10 cm long** for now and then start resuscitation immediately.

Step 4. Tie the cord two fingers' length from the baby's abdomen and make another tie two fingers from the first one. Cut the cord between the first and second tie. If the baby needs resuscitation, cut the cord immediately. If not, wait for **3–7 minutes** before cutting the cord.

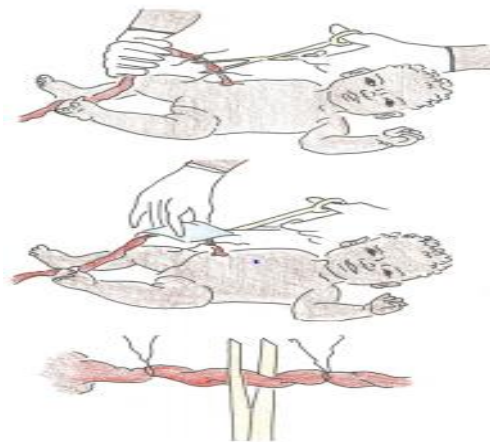


Figure 2.2 Tying and cutting the cord.

Step 5. Place the baby in skin-to-skin contact with the mother, cover with a warm cloth and initiate breastfeeding.

Step 6 Give eye care;- Shortly after breastfeeding and within one hour of being born, give the newborn eye care with an antimicrobial medication. Eye care protects the baby from serious eye infection which can result in blindness or even death.

The steps to keep the newborn warm are called the **warm chain**.

1. Warm the delivery room.
2. Immediate drying.
3. Early skin-to-skin contact.
4. Early breastfeeding.
5. Bathing and weighing postponed.
6. Appropriate clothing/bedding.

3. Skin-to-skin contact at birth.

7. Mother and baby together.

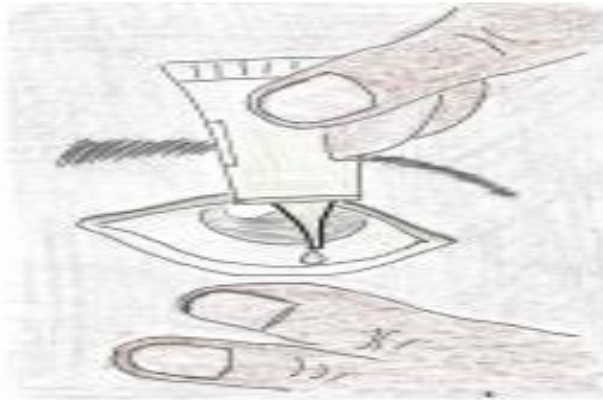
4. Breast feeding.

8. Warm transportation for a baby that needs referral.



Figure 2.4 Initiating immediate breastfeeding.

Step 6 Give eye care;- Shortly after breastfeeding and within one hour of being born, give the newborn eye care with an antimicrobial medication. Eye care protects the baby from serious eye infection which can result in blindness or even death.



e

Figure 2.5 Putting tetracycline eye ointment into the eyes of the newborn baby.

e



Step7. Give the baby **vitamin K, 1 mg by intramuscular injection (IM)** on the outside of the upper thigh (while the baby is held by its mother). After following correct infection prevention steps, with the other hand stretch the skin on either side of the injection site and place the needle straight into the outside of the baby's upper thigh (perpendicular to the skin).

Step8. Weigh the baby. Weigh the baby an hour after birth or after the first breastfeed. If the baby weighs less than 1,500 gm you must refer the mother and baby urgently.

Information Sheet .2- Documenting all children in the catchment area for age specific service

Operation sheet 1- Document all children at health post

Self-check 1

Written test, demonstration & observation

Definition of documentation

Documentation is writing information about something what was done or want to do things. As a health extension worker you will document the health activity done at your health post. For example, immunization given for a children, antenatal care given for pregnant women, post natal care after delivery, etc.

Documentation is also often distributed via websites, software products, and other online applications.



Why is documenting your work important?

By **documenting your** processes, you ensure efficiency, consistency, and peace of mind for anyone involved. This kind of standardization between processes ensures everyone in **your** organization is **working** the same way towards the same outcome.

Why is record keeping important in care?

Good **record-keeping** helps to maintain best practice, aiding clear communication between professionals, and demonstrates that best practice has been followed. Complete, contemporaneous and well-organized medical **records** are essential for good medical practice and continuity of **care**

What are the four purposes of medical records?

- It tells the **patient's** "story":
- the presenting problem and the treatment received;
- Helps to plan and evaluate a **patient's** treatment;
- Creates a permanent **record** for the **patient's** future care;

Builds a database to evaluate the effectiveness of treatment that may be useful for research and education.

Documentation is important for **child development** programs to maintain child health records

Medication:- Children may be given medication at the Centre if:- The medication is clearly labeled for each child and in the original container with a current use-by-date. Parent completes and signs a medical authorization form and hands the medication to the room leader on duty.

1. Immunization



Childhood illness can often be life-threatening to your children. In the interest of the health of all children attending the Centre you are required to provide an immunization certificate to the Authorized Supervisor (prior to commencement) as required under the Public Health Act.

Immunizations must be kept up-to-date and the Authorized Supervisor notified each time an immunization is completed. Another copy of individual child's 'blue book' verifying the immunizations is required.

2. Illness

Should your child become ill? For how long? It is important that you collect your child promptly to minimize your child's discomfort and to reduce the possibility of cross-infection with other attending children.

The child may return to the center providing that they are not contagious and are not undergoing the first two days of antibiotic treatment. A H/E registration book verifying all illness information which needs treatment, follow-up, referral for further investigation, counseling, etc. to be provided on return to the Health post.

If your child needs to take medication for non-contagious illnesses, please hand them to the staff upon arrival. The medication forms must be completed to give authorization for the medication to be administered.

3. Infectious Diseases

Children suffering from infectious diseases (e.g. diarrhea, measles, mumps, chickenpox, and conjunctivitis) or if vomiting must be excluded from the service for the period of time specified by the NSW Department of Health guidelines. Consultation with your family doctor is recommended.

There Are Five Characteristics of Good Medical Documentation

A. Accuracy

In medical communications, one of the most important characteristics of good medical communications is the level of accuracy. ...

B. Accessibility of the record. ...

C. Comprehensiveness. ...

D. Consistency in Medical Communications. ...



E. Updated information.

Materials needed for documenting information are:-

Log-book, paper, pen, chart, cards (FP, EPI, ANC,...) computer, and so on.....



Information sheet 3 Communicating and demonstrating child feeding practices to the care givers

Self-check3

Written test, demonstration & role play

Operation Sheet 2- demonstrate child feeding practices

In this instruction sheet the trainee will be able to:-

- Understand how to communicate the care giver;
- Knowing what type of food to feed & how to demonstrate feeding practice

Definition of communication

1. Communication is simply the act of transferring information from one place, person or group to another. Communications is the act of sharing knowledge, feelings ideas and information with others.
2. Communication is usually a process of interaction. In the course of communication, the communicators influence each other's ideas, attitudes, knowledge and behaviours through interaction.
3. Communication can be verbal or non-verbal; face to face or at a distance in time and space. In face to face communication, gestures, body, language, tone and facial expressions affect what is being said.
4. Communication is said to have taken place if what is intended is conveyed. Even while listening to the news, though it appears to be an one way communication, one can notice



listeners reacting to it. Since communication takes place in a context, communication is at its best when both the parties involved understand the context.

5. Communication has four dimensions

1. Physical setting (room, open place, etc)
2. Social setting (relationships of the members of the group)
3. Psychological setting (formal, informal, friendly, unfriendly)
4. Point of time (morning, afternoon, time of the year, etc.)

Every communication involves (at least) one sender, a message and a recipient. This may sound simple, but communication is actually a very complex subject.

The different categories of communication include:

Spoken or Verbal Communication, which includes face-to-face, telephone, radio or television and other media.

- **Non-Verbal Communication**, covering body language, gestures, how we dress or act, where we stand, and even our scent. There are many subtle ways that we communicate (perhaps even unintentionally) with others. For example, the tone of voice can give clues to mood or emotional state, whilst hand signals or gestures can add to a spoken message.
- **Written Communication**: which includes letters, e-mails, social media, books, magazines, the Internet and other media. Until recent times, a relatively small number of writers and publishers were very powerful when it came to communicating the written word. Today, we can all write and publish our ideas online, which has led to an explosion of information and communication possibilities.
- **Visualizations**:

graphs and charts, maps, logos and other visualizations can all communicate messages.

Health Extension worker should know the community common language to effectively communicate with them. And also show them smile face and greet them for good communication.



Figure 3:1,2,&3 shows how health extension worker communicate with care giver.



Figure 3:2



Figure 3:3

Source;- Health Extension Workers mobilized to fight COVID-19 in Ethiopia



With an increase of cases, health extension workers are on the ground to prevent and mitigate the spread of COVID-19.

By Feven Getachew

Good communication skills

An important reason for asking the mother a few simple questions at the beginning of the visit is to open good communication with her. This will help to reassure the mother that her baby will receive good care. When you treat the infant's illness later in the visit or during any follow-up visits, you will need to teach and advise the mother about caring for her sick infant at home. You will learn more about how to communicate with and counsel the mother effectively about home treatment in Study Session 14 in this Module. The key point is that it is important to establish good communication with the mother from the beginning of the visit.

Good communication involves using several skills. You should:

- . Listen carefully to what the mother tells you. This will show her that you are taking her concerns seriously.
- . Use words the mother understands. If she does not understand the questions you ask her, she cannot give the information you need to assess and classify the infant correctly.
- . Give the mother time to answer the questions. For example, she may need time to decide if the sign you asked about is present.



. Ask additional questions when the mother is not sure about her answer. When you ask about a main symptom or related sign, the mother may not be sure if it is present. Ask her additional questions to help her give you clearer answers.

Information sheet 1.4 Infection prevention

What is an infection?

The invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that are not normally present within the body. ... An **infection** may remain localized, or it may spread through the blood or lymphatic vessels to become systemic (body wide).

What is the definition of an infection?



The invasion and growth of germs in the body, The germs may be bacteria, viruses, yeast, fungi, or other microorganisms. **Infections** can begin anywhere in the body and may spread all through it. An **infection** can cause fever and other health problems, depending on where it occurs in the body.

It **means preventing** and controlling illnesses that can be spread in the health-care setting. The purpose of **infection prevention** and **control** is to identify and reduce. the risk of **infections** among patients, employees, medical staff members, contract.

What's the difference between infection and disease?

Infection, often the first step, occurs when bacteria, viruses or other microbes that cause **disease** enter your body and begin to multiply. **Disease** occurs when the cells in your body are damaged — as a result of the **infection** — and signs and symptoms of an **illness** appear.

What are the five signs of an infection?

Know the Signs and Symptoms of Infection

- **Fever** (this is sometimes the only sign of an infection).
- Chills and sweats.
- Change in cough or a new cough.
- Sore throat or new mouth sore.
- Shortness of breath.
- Nasal congestion.
- **Stiff neck.**
- Burning or **pain** with urination.

What causes infection?



The organisms that cause infections are very diverse and can include things like viruses, bacteria, fungi, and parasites. You can acquire an infection in many different ways, such as directly from a person with an infection, via contaminated food or water, and even through the bite of an insect.

Why is it important to prevent the spread of infection?

Infection prevention and control (IP&C) practices are **important** in maintaining a safe environment for everyone by reducing the risk of the potential **spread** of diseases

Top 10 ways to prevent infection

1. Wash your hands frequently
- 2; Don't share personal items.
3. Cover your mouth when you cough or sneeze (either).
4. Get vaccinated.
5. Use safe cooking practices.
6. Be a smart traveler.
7. Practice safe sex.
8. Don't pick your nose (or your mouth or eyes).
9. Exercise caution with animals.
10. **Watch the news.**

What is Infection Control?

In health care and public health practice settings, infection control includes various measures that prevent and contain the spread of infectious disease. These measures include:

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- Hand Washing
- Infection control standard, contact, droplet and airborne precautions
- Procedures for decontamination of persons and disinfection of equipment and the environment
- Quarantine of contacts (if necessary)
- Prophylaxis of exposed individuals
- Control of the vectors of infection

How can we prevent and control diseases?

Learn these healthy habits to protect yourself from disease and prevent germs and infectious diseases from spreading.

1. Handle & Prepare Food Safely. ...
2. Wash Hands Often. ...
3. Clean & Disinfect Commonly Used Surfaces. ...
4. Cough & Sneeze Into Your Sleeve. ...
5. Don't Share Personal Items. ...
6. Get Vaccinated. ...
7. **Avoid** Touching Wild Animals.

What are the 3 types of prevention?

The three levels of preventive care—primary, secondary, and tertiary care—are detailed below:

- **Primary Prevention.** Primary prevention aims to avoid the development of a disease or disability in healthy individuals. ...



- **Secondary Prevention. ...**
- **Tertiary Prevention.**

Prevention Strategy: Types of Prevention

In general, preventive care refers to measures taken to prevent diseases instead of curing or treating the symptoms. The three levels of preventive care—primary, secondary, and tertiary care—are detailed below:

Primary Prevention

Primary prevention aims to avoid the development of a disease or disability in healthy individuals. Most population-based health promotion activities, such as encouraging less consumption of sugars to reduce caries risk, are primary preventive measures. Other examples of primary prevention in medicine and dentistry include the use of fluoridated toothpaste, and vaccinations for infectious diseases like measles, mumps, rubella, and polio.

Secondary Prevention

The focus of secondary prevention is early disease detection, making it possible to prevent the worsening of the disease and the emergence of symptoms, or to minimize complications and limit disabilities before the disease becomes severe. Secondary prevention also includes the detection of disease in asymptomatic patients with screening or diagnostic testing and preventing the spread of communicable diseases. Examples in dentistry and medicine include screening for caries, periodontal screening and recording for periodontal disease, and screening for breast and cervical cancer.

Tertiary Prevention

The goal of tertiary prevention is to reduce the negative impact of an already-established disease by restoring function and reducing disease-related complications. Tertiary prevention also aims to improve the quality of life for people with disease. In medicine and dentistry, tertiary prevention measures include the use of amalgam and composite fillings for dental caries, replacement of missing teeth with bridges, implants, or dentures, or insulin therapy for Type II diabetes.



Self check question _____

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Define communication
2. Why demonstration is necessary for care giver?



1.5:- Demonstrating Communicating with children and playing mechanisms

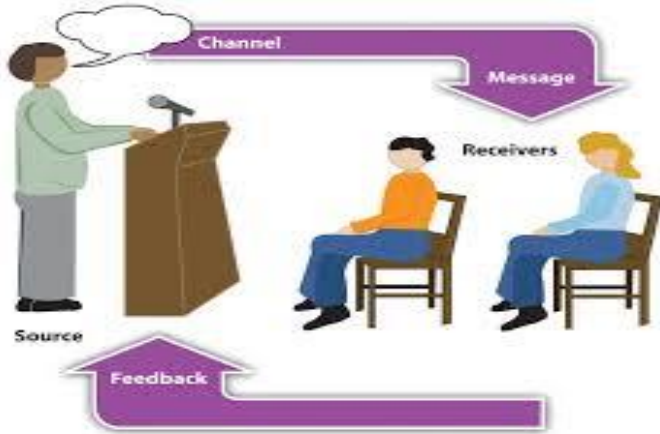
Communication Process

The communication process consists of several components. Let's take a look.

A sender is the party that sends a message. Lindsey, of course, will be the sender. She'll also need the message, which is the information to be conveyed. Lindsey will also need to encode her message, which is transforming her thoughts of the information to be conveyed into a form that can be sent, such as words.

A channel of communication must also be selected, which is the manner in which the message is sent. Channels of communication include speaking, writing, video transmission, audio transmission, electronic transmission through emails, text messages and faxes and even nonverbal communication, such as body language. Lindsey also needs to know the target of her communication. This party is called the receiver.

Components of the **communication process** include a sender, encoding of a message, selecting of a channel of **communication**, receipt of the message by the receiver and decoding of the message. Sometimes, the receiver will send a message back to the original sender, which is called feedback.




Demonstrating hand washing



1. Demonstrating hand washing

× FIGHT GERMS BY WASHING YOUR HANDS! >

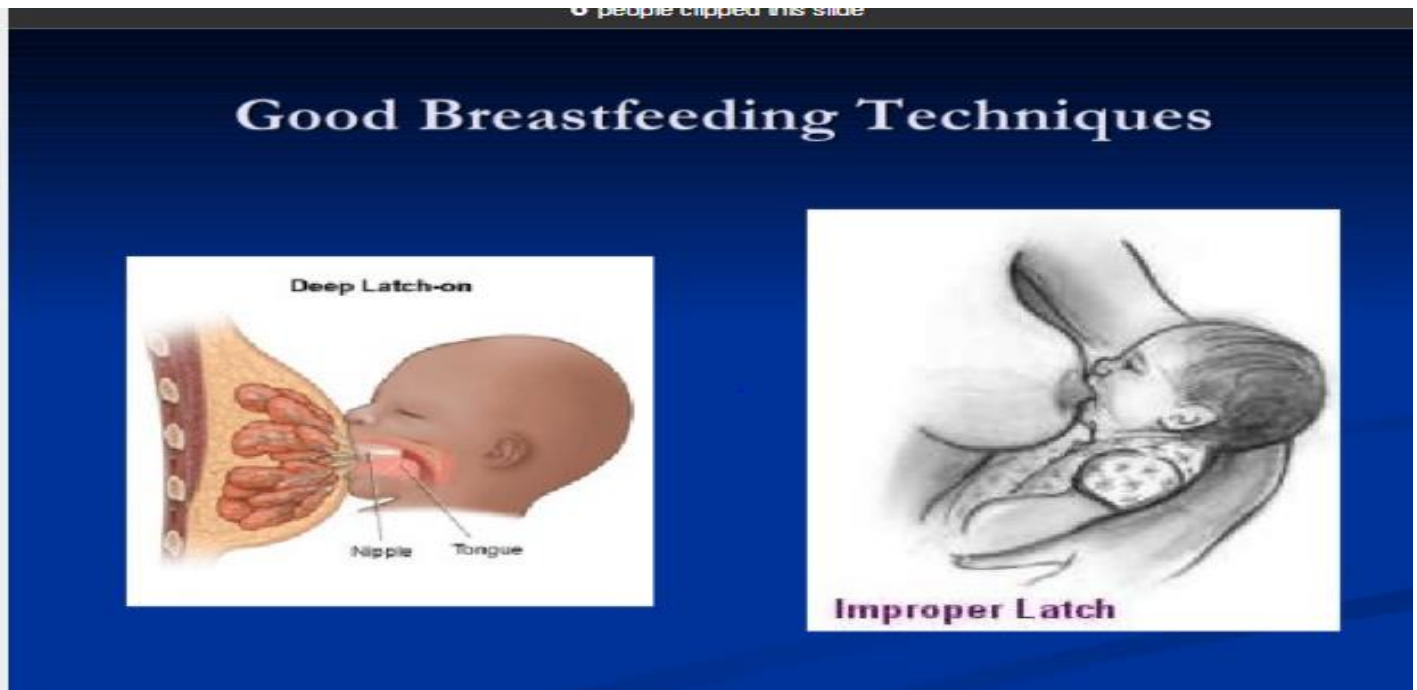


- 1** Wet your hands
- 2** Soap
- 3** Lather and scrub - 20 sec
- 4** Rinse - 10 sec
- 5** Turn off tap
- 6** Dry your hands

DONT FORGET TO WASH:

- between your fingers
- under your nails
- the tops of your hands

2. Demonstrating Breast feeding



Breastfeeding Positions

Football Hold Position

- The infant's is placed under the arm, like holding a football
- Baby's body is supported with the forearm and the head is supported with the hand.
- Many mothers are not comfortable with this position
- Good position after operative procedures



© 2001 Marcella Hartscock

Adapted from AAFP Journal September 2001

3. Demonstration of child feeding



(a)

(b)





(c)

(d)

Play with objects begins as soon as infants can grasp and hold on to them; early investigative behaviours include mouthing/biting, rotating while looking, rubbing/stroking, hitting and dropping. This might be described as 'sensori-motor' play when the child is exploring how objects and materials feel and behave. From around 18-24 months, toddlers begin to arrange objects, which gradually develop into sorting and classifying activities. By the age of 4 years, building, making and constructing behaviours emerge

There is a considerable body of research which is indicative, relating children's play and aspects of their learning and development.

A number of studies reviewed demonstrated children being able to perform tasks in play at significantly higher levels than in non-playful contexts

Physical play

This type of play is the earliest to evolve and can be observed in most, if not all, mammals, and arguably some reptiles and amphibians. In human children it includes activity play (e.g. jumping, climbing, dancing, skipping, bike riding and ball play), fine-motor practice (e.g. sewing, colouring, cutting, junk modelling and manipulating action toys and construction toys) and what is usually referred to as 'rough-and-tumble' (play fighting with friends, siblings or caregivers).



- the mechanisms by which physical play contributes to cognitive self-regulation, attentiveness and other aspects of cognitive development;
- the interactions with gender, suggesting that what appear to be physically similar activities can have differential impacts on children depending on other aspects of their development;
- the consequences of changes in physical play as children grow up. It is notable that the vast majority of studies in this area are with quite young children and, as children grow up, physical play tends to transform into sports and games which are arguably less playful.

Play with objects

Play with objects This second type of play, which is also widely observed in primates, concerns children’s developing explorations of the world and the objects they find within it. It also has interesting and important links to physical play – particularly in fine motor development and pretence when it involves building models of real or imaginary objects and creatures, and imagining a scenario or narrative.

Play with objects begins as soon as infants can grasp and hold on to them; early investigative behaviours include mouthing/biting, rotating while looking, rubbing/stroking, hitting and dropping.



Symbolic play and language

We begin with play with language and its impact on early literacy, as this is the most researched area and the only one which has merited a significant review

- evidence that infants and toddlers frequently play with the sounds of language, including repeating strings of words containing related sounds. Eg. Ba ba ba, ma ma ma ,etc.

Summary

The evidence base for conclusions on physical play is not extensive. In addition to the studies reviewed here, we found a further 8 studies which were mostly small scale, exploratory case studies. This adds up to little more than 20 studies, and the majority of these are with quite small samples of less than a hundred children.

- there is good evidence that physically active play provides children with exercise and the consequent health benefits;
- there seems to be reasonable evidence associating physical play of various kinds with academic progress and cognitive self-regulation, and with social competence;
- there is some evidence that, for boys, rough-and-tumble play supports the development of their social competence and emotional awareness and has possible indirect effects on academic progress;
- there is evidence that unstructured breaks from cognitive tasks improve learning and attention, though it is unclear whether physical play contributes to this effect beyond simply taking a break and, for example, talking with friends.

Activate
Go to Settings

Demonstrating playing



Demonstrating Communicating with children and playing mechanisms



1.6 Developmental and growth pattern milestones

What developmental milestones mean?

Developmental milestones are things most children can **do** by a certain age. Skills such as taking a first step, smiling for the first time, and waving “bye-bye” are called **developmental milestones**. Children reach **milestones** in how they play, learn, speak, act, and move.

Developmental milestones are behaviors or physical skills seen in infants and children as they grow and develop. Rolling over, crawling, walking, and talking are all considered milestones. The milestones are different for each age range. There is a normal range in which a child may reach each milestone.

Developmental milestones are a set of behaviors, skills, or abilities that are demonstrated by specified ages during infancy and early childhood in typical development. Developmental milestones are often presented in lists broken down by ages, beginning around 1–3 months of age and progressing through approximately 5 years of age.

Developmental milestones are behaviors or physical skills seen in infants and children as they grow and develop. Rolling over, crawling, walking, and talking are all considered **milestones**. The **milestones** are **different** for each age range. There is a normal range in which a child may reach each **milestone**.

Milestones involve physical, social, emotional, cognitive, and communication skills that kids need to learn as they develop and grow. Often these skills build on each other. For instance, first, a baby pulls up, then they stand, followed by taking their first steps.

Tips for assessing development

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1. Consider the child's age and then using the above examples, focus your questions on the likely areas of current **developmental** progress.
2. Offer the child suitable toys to **assess** skills through play.
3. Observe how the child uses toys and interacts with people.

What are the 5 developmental stages?

Five Stages of Child Development

- Newborn. During the first month of life, newborns exhibit automatic responses to external stimuli. ...
- **Infant.** **Infants** develop new abilities quickly in the first year of life. ...
- **Toddler.** ...
- **Preschool.** ...
- **School age**



LG #35	LO #2. Assess, classify and manage common child hood illnesses
Instruction sheet	Asses, classify and manage common child hood illnesses

2.1. Introduction to IMNCI

2.1.1. Definition of terms

2.1.2. Explaining common child hood illness

2.1.3. The IMNCI assessment

Taking pertinent history and physical examination including V/S by using IMNCI guideline

2.1.3 Assessing General danger signs

2.1.4. Performing basic investigations (RDT)

2.1.5. Classification of cases using IMNCI guideline

2.1.6. IMNCI case management

2.2 Maternal newborn and child health

2.1.7. Essential new born care

2.1.8. Newborn danger signs

2.1.9. Low birth weight and its management

2.3 Management of bacterial infection and jaundice in the newborn and young infants



- 2.3.1. Assessment and management of bacterial infection
- 2.3.2. Assessment and management of jaundice
- 2.4 Assess and classify cough or difficulty breathing
 - 2.3.2. Assessing cough or difficult breathing
 - 2.3.3. Classifying cough or difficult breathing
 - 2.3.4. Treatment of cough or difficult breathing
 - 2.3.5. Follow up care for pneumonia
- 2.4. Management of diarrheal diseases in young infant and children
 - 2.4.1. Assessing and classify diarrhea
 - 2.4.2. Management of dehydration
 - 2.4.3. Classification of persistent diarrhea
 - 2.4.4. Management of persistent diarrhea
 - 2.4.5. Classification and management of dysentery
- 2.5. Management of sick children with fever
 - 2.5.1. Assessment of fever
 - 2.5.2. Performing RDT for malaria and classification of fever
 - 2.5.3. Management of fever or malaria
- 2.6. Malnutrition and anemia in the sick child
 - 2.6.1. Causes of malnutrition
 - 2.6.2. Assessment and classification of malnutrition



- 2.6.3. Management of malnutrition and anemia
- 2.7. HIV infection in infant and children
 - 2.7.1. Assessment and classification of HIV infection in children
 - 2.7.2. Management of HIV infection in children
- 2.8. Infant and young child feeding
 - 2.8.1. Assessing and classifying feeding problem in children
 - 2.8.2. Infant and young child feeding recommendation
- 2.9. Immunization and related interventions
 - 2.9.1. The expanded program of immunization
 - 2.9.2. Contra- indications to vaccine administration
- 2.10. Ear problem and other common childhood infections
 - 2.10.1. Assessment and classification of ear problem and other common child hood infections
 - 2.11.2. Management of ear problem and other common child hood infections
- 2.12. Assessment, classification and management of skin infection
- 2.13. Eye infection and its management



Introduction to IMNCI

□ Every year about 10 million children in developing countries die before they reach their fifth birthday, many of them during the first year of life.

□ Ethiopia has one of the highest under-five mortality rates with more than 321,000 children under the age of five dying every year.

□ More than 70% of these child deaths are due to five diseases, namely pneumonia, diarrhoea, malaria, measles and malnutrition, and often to a combination of these conditions.

□ These diseases are also the reasons for seeking care for at least three out of four children who come to health facilities. 4/4/2019 BRIG DR HEMANT KUMAR 5 □ As children usually present with more than one of these conditions, it was recognized that there was a need for an integrated approach in order to manage the child in a holistic manner . Globally, under-five mortality rate has decreased by 56%, from an estimated rate of 93 deaths per 1000 live births in 1990 to 41 deaths per 1000 live births in 2016. ... 4/4/2019 7BRIG DR HEMANT KUMAR

The goal is for all countries aiming reduce under-five mortality to at least as low as 25 per 1000 live births. (India =48/39). □ This led to the development of the Integrated Management of Childhood Illness (IMCI) strategy. 4/4/2019 BRIG DR HEMANT KUMAR 8

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□ The generic IMCI guidelines were adapted and the Indian version was named Integrated Management of Neonatal and Childhood Illness (IMNCI). □ IMNCI strategy is one of the main interventions under RCHII/ NHM, that focuses on preventive, promotive and curative aspects of program. 4/4/2019 10BRIG DR HEMANT KUMAR

WHY IMNCI ???



□ To Reduce infant and child mortality rates & Improve child health & survival. □ India is still among high infant mortality Rate countries but there has been significant decline from 204 during 1911- 1915 to 129 per 1000 live births in 1970 and remained static at around 127 for many years. □ As of 2015 data India's Infant Mortality Rate is 38 per 1000 live births. 4/4/2019 11BRIG DR HEMANT KUMAR

WHY INTEGRATED APPROACH?

1. Integrated approach is child centred.
2. Five conditions : Pneumonia, Diarrhoea, Measles, Malaria and Malnutrition are major cause of Death.
3. 3 out of 4 children seeking health care in developing countries suffers from one of these condition.
4. Children likely to be suffering from more than one condition.
5. Making a single diagnosis may be difficult. Such children often need combined therapy for successful 4/4/2019 13BRIG DR HEMANT KUMAR

What is a childhood disease?

Childhood disease and disorder, any **illness**, impairment, or abnormal condition that affects primarily infants and children—i.e., those in the age span that begins with the fetus and extends through adolescence. **Childhood disease** and disorder.



2.1 Introduction to IMNCI

IMCI is an integrated approach to child health that focuses on the well-being of the whole child. **IMCI** aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age.

Integrated Management of Childhood Illness (**IMCI**) is a systematic approach to children's health which focuses on the whole child. This **means** focusing not only on curative care but also on prevention of disease. The approach was developed by United Nations Children's Fund and the World Health Organization in 1995.

The IMNCI guidelines are designed for the management of sick children from birth up to five years old.

In the home setting, IMNCI:

- promotes appropriate care-seeking behaviours
- helps to improve nutrition and preventative care, and
- supports the correct implementation of prescribed care.

The integrated case management process taught in this Module will help you to quickly consider all of a child's symptoms and not overlook any problems. You will learn how to determine if a child is severely ill and needs urgent referral. You will also learn how to treat a child's illness and how to counsel caregivers to treat a child at home for those infants and children who do not need to be referred urgently. This study session outlines the guidelines for counselling mothers and other caregivers, something which you will also look at in more detail in Study Session 14 of this Module.

Learning Outcomes for Study Session

When you have studied this session, you should be able to:

1.1 Define and use correctly all of the key words printed in **bold**.

1.2 Define the importance and objectives of the IMNCI strategy.

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1.3 Summarize the main steps of the IMNCI assessment.

1.4 Describe the general danger signs (GDS).

2.1.1 Definition of terms

IMCI is public child health: it is “essential health care” in that it aims to address the “main health problems” of under-five children in a country, based on epidemiological evidence.

2.1.2 Explaining common childhood illness

This qualification aims to help equip you with a clear understanding of common childhood illnesses, including how to provide a safe and healthy environment for babies and young children, how to recognize when a baby or child is unwell, and how to effectively manage both acute and chronic health conditions in an early years environment.

Understand common childhood illnesses

This unit will help you to recognise when a child is unwell, and common childhood illnesses that may occur. You will also consider the policies and procedures relating to unwell children in an early years setting.

Infectious Diseases

Any infection or disease that can be spread from one person to another by a specific organism is considered to be infectious (also referred to as contagious or communicable). Children may be exposed to a variety of communicable infections or diseases during their pre-school and school years. Staff can help limit the spread and the resulting illness by following these guidelines:

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- Encourage children and students to practice consistent proper hand hygiene and respiratory etiquette (e.g. covering coughs and sneezes with a sleeve).
- Recognize significant changes in the health and behaviour patterns of children and students, and consult with parents and/or the appropriate school official, Health Unit or other community resources. Refer to the **Symptoms That May Suggest Illness** for the warning signs of illness.
- Make sure appropriate actions (according to the child care facility, school and/or Health Unit policies) are taken if a child or student is ill (e.g. exclusion, reporting to the Health Unit).

How Infection Spreads

Infections are illnesses that are caused by germs. Examples of germs include bacteria viruses, parasites or fungi.

- Germs are found in body secretions (such as saliva, blood, stool or vomit), in tiny droplets produced by breathing, coughing or sneezing or within infected areas of the skin. They can survive for hours, days or even longer in the environment outside the infected person.
- Germs are spread from one person to another in different ways; for example through the air or by contact with body secretions. Others can be spread through direct physical contact when touching someone's infected skin or contaminated surfaces within the environment.
- A person can be infectious before symptoms develop, and even after recovery. In some cases, a person may spread germs without having any signs of illness; they are called a carrier.

The Basics of Infection Control

Assume that all children in your care are potentially infectious.

- Proper hand hygiene is the most important way to prevent the spread of infection.
- Keep frequently touched environmental surfaces, shared items (e.g. toys and computers) and hands as clean as possible.



Infectious Disease Outbreaks

What is an Outbreak?

An outbreak may exist when a greater than expected number of children have similar symptoms within a designated period of time (e.g. vomiting, diarrhea, rash, respiratory symptoms).

2.1.3 The IMNCI assessment

When you are assessing a sick child, a combination of individual signs leads to one or more classifications, rather than to a diagnosis. IMNCI classifications are action-oriented illness categories which enable a healthcare provider to determine if a child should be urgently referred to a health center, if the child can be treated at the health post (e.g. with oral antibiotic, antimalarial, ORS, etc.), or if the child can be safely managed at home. The IMNCI guidelines describe how you should care for a child who is brought to your health post with an illness, or for a scheduled follow-up visit to check the child's progress. The guidelines give instructions for how to routinely assess a child for general danger signs (or possible bacterial infection in a young infant), common illnesses, malnutrition and anemia, and to look for other problems. In addition to treatment, the guidelines incorporate basic activities for illness prevention.

- The most common causes of infant and child mortality in developing countries (including India) are:
 - Acute respiratory infections
 - Diarrhoea
 - Malaria
 - Measles and
 - Malnutrition
- Making a single diagnosis may not be feasible or appropriate
 - Because many children present with overlapping signs and symptoms of diseases
 - Clinical outcome depends upon treating not only the immediate presenting symptom but the underlying disorders as well



– This is especially true for first-level health facilities where examinations involve few instruments, little or no laboratory tests, and no X-ray

- Every day, millions of parents seek health care for their sick children, taking them to
 - health centers,
 - pharmacists,
 - doctors
 - Hospitals and
 - traditional healers
- Surveys reveal that many sick children are
 - not properly assessed and treated by these health care providers, and
 - That their parents are poorly advised.
- At first-level health facilities in low-income countries, diagnostic supports such as radiology and laboratory services are minimal or non-existent, and drugs and equipment are also scarce.
- These factors make providing quality care to sick children a serious challenge.

This module will help you learn to use the IMNCI guidelines in order to interview caregivers, accurately recognize clinical signs, choose appropriate treatments, and provide counseling and preventive care

2.1.3.1 Taking pertinent history and physical examination including V/S (RR,T⁰) by using IMNCI guideline

If a baby is breathing normally, both sides of the chest will rise and fall equally at around **30–60** times per minute.

- ❖ Thus, check if the baby is:
 - . Breathing normally
 - . Having trouble breathing
 - . Breathing less than 30 breaths per minute, or . Not breathing at all.

2.1.3.2 Assessing general danger sign



Neonates and young infants often present with non-specific symptoms and signs that indicate severe illness. These signs might be present at or after delivery or in a newborn presenting to hospital or develop during hospital stay. The aim of initial management of a neonate presenting with these signs is stabilization and preventing deterioration. The signs include:

Danger signs in newborns and young infants

- not feeding well.
- **convulsions.**
- drowsy or unconscious.
- **movement** only when stimulated or no **movement** at all | **fast breathing** (60 breaths per min)
- **grunting.**
- severe **chest indrawing.**
- raised temperature, > 38 °C.
- **hypothermia**, < 35.5 °C.

All children aged two months up to five years should be checked first for the five general danger signs: inability to drink or breastfeed, vomiting everything, history of **convulsions** during the current illness, **lethargy** or **unconsciousness** and **convulsions** now.

➤ **Birth asphyxia**

As a Health Extension Practitioner you might be the only person present able to help the baby start breathing and prevent complications caused through lack of oxygen to the brain in the first few minutes after delivery. You therefore have an important role in the early moments and hours after birth. After completing this section you will understand the causes of birth asphyxia and be able to assess, classify and manage a newborn baby for birth asphyxia.

❖ **During pregnancy the mother may have:**

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- Hypertension (high blood pressure)
- Diabetes.
- Infection
- Asthma

2.4.1 Assess and classify birth asphyxia

If you are attending a delivery or a baby is brought to you immediately after birth, you should assess for birth asphyxia. Assess the baby after drying and wrapping him or her with a dry cloth. To assess for birth asphyxia, you need to look and listen for breathing patterns.

Assess asphyxia.

No breathing: the newborn has not cried or there are no spontaneous movements of the chest. . **Gasping:** the newborn attempts to make some effort to breathe with irregular and slow breathing movements.

. **Breathing poorly:-** count breaths in one minute.

The normal breathing rate of a newborn baby is 30-60 per minute. If the breathing rate is less than 30 per minute it is a sign of asphyxia

Classify asphyxia

There are two possible classifications:

Table 2.1 Assessment, classification and management of birth asphyxia.

SIGNS	CLASSIFY AS	TREATMENT
If any of the following sign <ul style="list-style-type: none"> • Not breathing • Gasping • Is breathing poorly (less than 30 per minute) 	Birth Asphyxia	<ul style="list-style-type: none"> • Cut the cord Start resuscitation <ul style="list-style-type: none"> • Position the newborn supine with neck slightly extended • Clear the mouth and nose with gauze or clean cloth or bulb syringe • Ventilate with appropriate size mask and self inflating bag • If the resuscitation is successful continue giving essential newborn care • If the baby remains weak or still has irregular breathing after 20 minutes of resuscitation refer urgently to hospital; continue to resuscitate the baby on the way • Stop resuscitation after 20 minutes if no response (no spontaneous breathing) • Monitor continuously for 6 hours • Follow-up care after 6–24hrs, days 3 and 7
<ul style="list-style-type: none"> • Strong cry • Breathing more than 30 per minutes 	No Birth Asphyxia	<ul style="list-style-type: none"> • Cord care • Eye care • Vitamin K • Initiate skin-to-skin contact • Initiate breastfeeding • Advise mother when to return • Give OPVO and BCG vaccination • Follow-up care after 6 hrs, 3 days and 6 weeks

If you need to remind yourself about the detail of how to manage birth asphyxia you should revisit Study Session 7 of the *Labour and Delivery Care* Module.

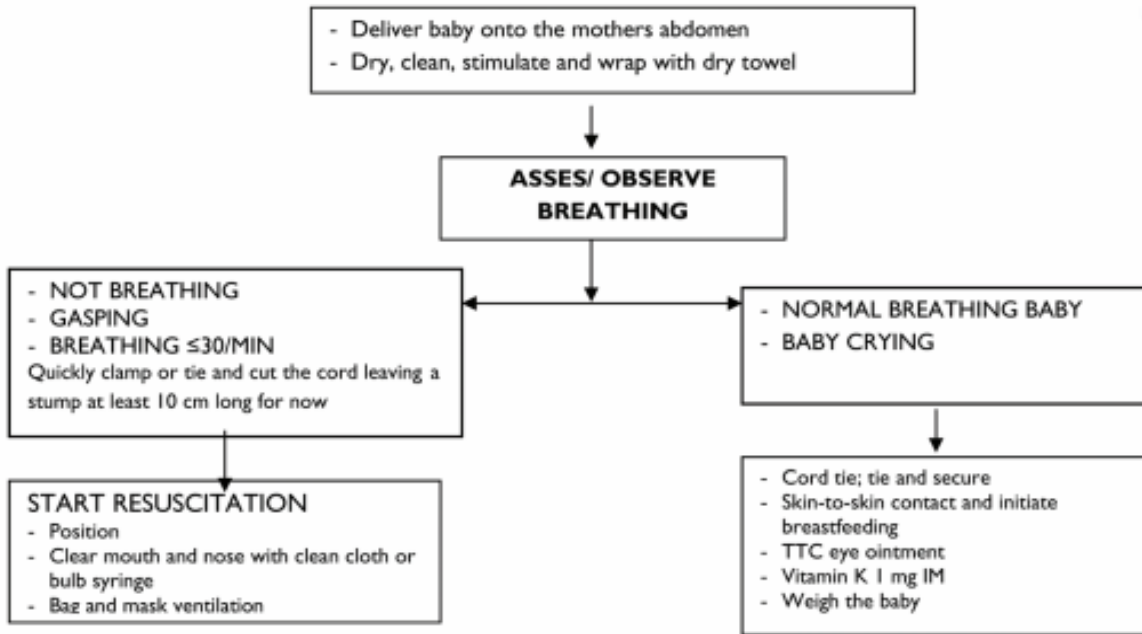


Figure 2.6 Steps of immediate newborn care.

2.1.3.1 Assessing General danger signs (GDS)

Since IMNCI takes a holistic approach to assessing, classifying and treating childhood illnesses it is important to look for general danger signs as well as symptoms and signs of specific childhood illnesses. The general danger signs are signs of serious illness that are seen in children aged two months up to five years and will need immediate action to save the life of the child.

- There are five general danger signs and these are set out in Box 1.2 below (reproduced from the IMNCI **Assess and Classify Chart Booklet**, FMOH Ethiopia, June 2018).

Make sure that any infant or child with any danger sign is referred after receiving urgent pre-referral treatment.

Box 1.2 Checking for general danger signs

For ALL sick children ask the mother about the child's problem, then
CHECK FOR GENERAL DANGER SIGNS

↓

CHECK FOR GENERAL DANGER SIGNS	
ASK:	LOOK:
<ul style="list-style-type: none"> • Is the child able to drink or breastfeed? • Does the child vomit everything? • Has the child had convulsions? 	<ul style="list-style-type: none"> • See if the child is lethargic or unconscious. • See if the child is convulsing now.
A child with any general danger sign needs URGENT attention; complete the assessment and any pre-referral treatment immediately so referral is not delayed	

- ❖ There are key questions you need to ask and signs you need to look for. A child with a general danger sign has a serious problem. Most children with a general danger sign need urgent referral to hospital. They may need lifesaving treatment with injectable antibiotics, oxygen or other treatments that may not be available in the health post. You should complete the rest of the assessment immediately and give urgent pre-referral treatments before sending the patient to the next facility.



You will learn more about this later in this study session. You are first going to look in more detail how you check for general danger signs.

ASK: Is the child able to drink or breastfeed?

When you ask the mother if the child is able to drink, make sure that she understands the question.

If the mother replies that the child is not able to drink or breastfeed, ask her to describe

what happens when she offers the child something to drink. For example, is the child able to take fluid into his/her mouth and swallow it?

A child who is breastfed may have difficulty sucking when his nose is blocked. If the child's nose is blocked, clear it. If the child can breastfeed after the nose is cleared, the child does not have the danger sign, '**not able to drink or breastfeed**'.

ASK: Does the child vomit everything?

A child who is not able to hold anything down at all has the sign '**vomits everything**'.

A child who vomits everything will not be able to hold down food, fluids or oral drugs. A child who vomits several times but can hold down some fluids does not have general danger sign.

- ✓ When you ask the question, use words the mother understands.

Give her time to answer. If the mother is not sure if the child is vomiting everything, help her to make her answer clear.

For example, ask the mother how often the child vomits.

Also ask if each time the child swallows food or fluids, does the child vomit?

If you are not sure of the mother's answers, ask her to offer the child a drink.

See if the child vomits.

ASK: Has the child had convulsions?

During a convulsion, the child's arms and legs stiffen because the muscles are contracting or if the child has repeated abnormal movements. The child may lose consciousness or not be able to respond to spoken

directions. Ask the mother if the child has had convulsions during this current illness. Use words the mother understands. For example, the mother may know convulsions as ‘fits’ or ‘spasms’.

See also if the child is convulsing now.

LOOK to see if the child is lethargic or unconscious

A lethargic child is not awake and alert when he should be. The child is drowsy and does not show interest in what is happening around him. Often the lethargic child does not look at his mother or watch your face when you talk. The child may stare blankly and appear not to notice what is going on around him. An unconscious child cannot be wakened. He does not respond when he is touched, shaken or spoken to.

LOOK or FEEL for stiff neck.

A child with fever and stiff neck may have meningitis. A child with meningitis needs urgent treatment with injectable antibiotics and referral to a hospital.

While you talk with the mother during the assessment, look to see if the child moves and bends his neck easily as he looks around. If the child is moving and bending his neck, he does not have a stiff neck.





If you did not see any movement, or if you are not sure, draw the child's attention to his umbilicus or toes. For example, you can shine a flashlight on his toes or umbilicus or tickle his toes to encourage the child to look down. Look to see if the child can **bend his neck** when he looks down at his **umbilicus** or *toes*. If you still have not seen the child bend his neck himself, ask the mother to help you lie the child on his back. Lean over the child, gently support his back and shoulders with one hand. With the other hand, hold his head. Then carefully bend the head forward toward his chest. If the neck bends easily, the child does not have stiff neck. If the neck feels stiff and there is resistance to bending, the child has a stiff neck. Often a child with a stiff neck will cry when you try to bend the neck.

FEEL for bulging fontanelle

The fontanelle is open for most of the period of infancy before it is closed by the growth of the surrounding bones. If the fontanelle is open, feel for bulging fontanelle just as you did for young infants. LOOK for runny nose. A runny nose in a child with fever may mean that the child has a common cold. If the child has a runny nose, ask the mother if the child has had a runny nose only with this illness. If she is not sure, ask questions to find out if it is an acute or chronic runny nose.

2.1.4. Performing basic investigation (RDT)

What are RDTs? Rapid diagnostic tests or RDTs are a way to test whether a person with malaria-like symptoms actually has malaria. Malaria is caused by a parasite that infects blood cells. The parasite is what causes the fever and other symptoms common to malaria. Malaria parasites produce chemicals (proteins) called antigens. RDTs detect these malaria antigens in a person's blood. If malaria antigens are present, the person will test positive. If malaria antigens are not present, the person will test negative. Different types of RDTs detect different antigens. Some antigens are produced by a single species of malaria parasite (e.g. *Plasmodium falciparum*), some are produced by all malaria species (including *P. vivax*, *P. ovale* and *P. malariae*). If present, the antigens cause microscopic particles to stick to a band on the RDT, eventually forming a visible, coloured line in the 'test' area.

— Why are RDTs important for malaria control?



In the past, most people have used two methods to diagnose malaria: – The first method is called ‘microscopy’. Microscopy means taking a small amount of blood from the patient and looking at it under a microscope to check for malaria parasites. But many places cannot use microscopy because there is no microscope available or because there is no one trained to find malaria parasites using a microscope. – The second method is called ‘clinical’ or ‘presumptive’ diagnosis. Clinical/presumptive diagnosis means that health workers do not test to see if the patient has malaria parasites. Instead, they presume that anyone with fever has malaria. The problem with clinical diagnosis is that many different illnesses cause fever and other symptoms common to malaria. Many people with these symptoms do NOT actually have malaria. When everyone with fever is treated for malaria, antimalarial drugs are wasted. Even worse, people with other illnesses do NOT get the right treatment for the illness they have.

- RDTs are a simple and fast way for health workers to test for malaria parasites in a patient’s blood. They are more accurate than presumptive diagnosis and can be used close to the patient’s home. RDTs can also help identify patients who do not have malaria so that these patients can receive correct treatment.

RDTs give results in about 15 minutes (check product instructions), so a patient with malaria can begin treatment right away. There is no need to wait for microscope results.

- RDTs do not require any expensive or complicated equipment. Most people can learn to use RDTs in just a few hours. Today’s training will be enough for most of you to learn how to diagnose malaria safely and effectively with an RDT
- RDTs can be damaged by heat and humidity, so an RDT should not be removed from its sealed packet until right before you are ready to use it. If a package has been open for some time before the RDT is used, the RDT may be damaged by heat or humidity and give an invalid (false) result. You should discard this package and use another, unopened, package.

What are some limitations of RDTs?

- RDTs are very effective for diagnosing malaria, but there are some things they cannot do: n RDTs cannot test how many malaria parasites are present in the blood. They can only test whether parasites are present or absent.

Specific steps: —

As shown on the job aid, assemble all the supplies you will need, including: n A new, unopened test packet n A new, unopened alcohol swab n A sterile lancet (new and unopened)

Specific steps:

— 2.1 —

As shown on the job aid, assemble all the supplies you will need, including:

- A new, unopened test packet
- A new, unopened alcohol swab
- A sterile lancet (new and unopened)



- Buffer



- A watch or clock to use as a timer



- A new pair of disposable examination gloves



Activate Win
Go to Settings to



2.1.5 Classification of cases using IMNCI guideline

IMNCI is an integrated approach to child health that focuses on the wellbeing of the whole child. IMNCI aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. IMNCI includes both preventive and curative elements that are implemented by families and communities as well as by health facilities. In summary, the IMNCI strategy includes three main components:

1. Improving case management skills of healthcare staff.
2. Improving the health systems.
3. Improving family and community health practices.

In health facilities, the IMNCI strategy:

- promotes the accurate identification of childhood illnesses in out-patient settings
- ensures appropriate combined treatment of all major illnesses
- strengthens the counselling of caregivers
- speeds up the referral of severely ill children.

In the home setting, IMNCI:

- promotes appropriate care-seeking behaviours
- helps to improve nutrition and preventative care, and
- supports the correct implementation of prescribed care.

Assess and classify the young infant

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A young infant can become sick and die very quickly from serious bacterial infections such as **pneumonia**, **sepsis** and **meningitis**. Therefore if a young infant is brought to you because they are, or appear to be, sick it is important that you assess the infant carefully

- *Pneumonia is an infection of the lungs. Sepsis occurs when infection spreads to the bloodstream. Meningitis is an infection of the thin tissues that cover the brain and spinal cord.*

2.1.6 IMNCI case management

The IMNCI assessment

When you are assessing a sick child, a combination of individual signs leads to one or more classifications, rather than to a diagnosis. IMNCI classifications are action-oriented illness categories which enable a healthcare provider to determine if a child should be urgently referred to a health center, if the child can be treated at the health post (e.g. with oral antibiotic, antimalarial, ORS, etc.), or if the child can be safely managed at home.

The IMNCI guidelines describe how you should care for a child who is brought to your health post with an illness, or for a scheduled follow-up visit to check the child's progress. The guidelines give instructions for how to routinely assess a child for general danger signs (or possible bacterial infection in a young infant), common illnesses, malnutrition and anaemia, and to look for other problems. In addition to treatment, the guidelines incorporate basic activities for illness prevention.

The **IMNCI case management process** involves a stepwise approach consisting of the following elements:

- assessment,
- classification,
- treatment,
- counselling and follow-up.



- Assessment .
 - Assess a child by checking first for general danger signs (or possible bacterial infection in a young infant), asking questions about common conditions, examining the child, and checking nutrition and immunization status. Assessment includes checking the child for other health problems.
- Classification
 - . Classify a child's illnesses using a colour-coded classification system. Because many children have more than one condition, each illness is classified according to whether it requires:
 - ◦ urgent pre-referral treatment and referral (pink), or
 - ◦ specific medical treatment and advice (yellow), or
 - ◦ simple advice on home management (green). Identify treatment and treat
 - . After classifying all conditions, identify specific treatments for the child. If a child requires urgent referral, give essential treatment before the patient is transferred. If a child needs treatment at home, develop an integrated treatment plan for the child and give the first dose of drugs in the clinic. If a child should be immunized, give immunizations.
 - . Provide practical treatment instructions, including teaching the caregiver how to give oral drugs, how to feed and give fluids during illness, and how to treat local infections at home. Ask the caregiver to return for follow-up on a specific date, and teach her how to recognise signs that indicate the child should return immediately to the health post.
 - . Assess feeding, including assessment of breastfeeding practices, and counsel to solve any feeding problems found. Then counsel the mother about her own health. Follow-up care . When a child is brought back to the health post as requested, give follow-up care and, if necessary, reassess the child for new problems

2.2 maternal new born & child health

Health statistics show that world- wide about 4 million newborn babies die each year;

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another 4 million babies each year are stillborn; most die in late pregnancy or labour and most newborn deaths occur in developing countries. The same statistics show that about two-thirds of deaths in the first year of life occur in the first month of life; of those who die in the first month, about two-thirds die in the first week of life and of those who die in the first week, two-thirds die in the first 24 hours of life.

Eighty-five percent of newborn deaths are due to **three** main causes:-

Infection , birth asphyxia, and complications of prematurity and low birth weight (LBW).

In the Antenatal Care, Labour and Delivery Care and Postnatal Care.

Modules you have learned about focused antenatal care, the skills you need to provide safe and clean delivery and the content and timing of postnatal care. We believe that you have gained understanding that care for the newborn and care for the mother are always integrated and that it is important for you to know how to provide effective health services in a holistic way that takes into account the needs of both the mother and her newborn. In this study session you are going to learn about the knowledge and skills you need to provide essential newborn care and your role in supporting the mother and her new baby.

You have already covered some of the issues in the Postnatal Care Module; however newborn care is such a crucial part of your work as a Health Extension Practitioner that it is useful for you to revisit some of the key points, as well as learn new information that will help you carry out your role as effectively as possible.

Learning Outcomes for Study Session 2

When you have studied this session, you should be able to:

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2.1 Define and use correctly all of the key words printed in bold.

2.2 Describe how to give essential newborn care.

2.3 Explain how to assess, classify and treat a young infant for birth asphyxia.

2.4 Explain how to assess and classify and treat low birth weight babies.

2.5 Describe how to provide postnatal follow-up care.

2.2.1 Essential newborn care

The majority of babies are born healthy and at term. The care they receive during the first hours, days and weeks of life can determine whether they remain healthy. All babies need basic care to support their survival and wellbeing. This basic care is called essential newborn care (ENC) and it includes immediate care at birth, care during the first day and up to 28 days. Most babies breathe and cry at birth with no help. Remember that the baby has just come from the mother's uterus, an environment that was warm and quiet and where the amniotic fluid and walls of the uterus gently touched the baby. You too should be gentle with the baby and keep the baby warm. Skin to-skin contact with the mother keeps her baby at the perfect temperature, so you should encourage and help the mother to keep the newborn baby warm in this way.

The care you give the baby and mother immediately after birth is simple but important. In this study session you will learn about the steps of immediate care which should be given to all babies at birth. You will look at how to assess, classify and treat newborns for birth asphyxia and low birth weight as well as how to monitor the mother's condition closely in the minutes and hours after the birth.

2.2.2 The eight steps of essential newborn care

Before you look at the eight steps of essential newborn care (ENC) you need to remember the importance of the 'three cleans' of the Labour and Delivery Care Module. These are **clean**



hands, clean surface and clean equipment.

Your equipment should include two clean dry towels, cord clamps, razor blade, cord tie, functional resuscitation equipment, vitamin K, syringe and needles, and tetracycline eye ointment.

Step 1. Deliver the baby onto the mother's abdomen or a dry warm surface close to the mother. Continue to support and reassure the mother. Tell her the sex of the baby and congratulate her.

Step 2. Dry the baby's body with a dry warm towel as you try to stimulate breathing. Wrap the baby with another dry warm cloth and cover the head .

Dry the baby well, including **the head**, immediately and then discard the wet cloth. Wipe the baby's eyes. Rub up and down the baby's back, using a clean, warm cloth. Drying often provides sufficient stimulation for breathing to start in mildly depressed newborn babies. Do your best not to remove the vernix (the creamy, white substance which may be on the skin) as it protects the skin and may help prevent infection. Then wrap the baby with another dry cloth and cover the head.

Step 3. Assess breathing and colour; if not breathing, gasping or there are less than 30 breaths per minute, then resuscitate.

As you dry the baby, assess its breathing. If a baby is breathing normally, both sides of the chest will rise and fall equally at around **30–60** times per minute.

Thus, check if the baby is:

- ✓ . Breathing normally
- ✓ . Having trouble breathing
- ✓ . Breathing less than 30 breaths per minute, or . Not breathing at all.

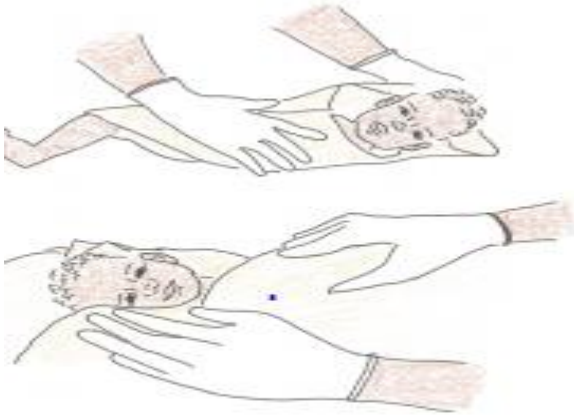


Figure 2.1 Drying and rapping the newborn baby.

If the baby needs resuscitation, quickly clamp or tie and cut the cord, leaving a stump at least 10 cm long for now and then start resuscitation immediately. Functional resuscitation equipment should always be ready and close to the delivery area since you must start resuscitation within one minute of birth.

Step 4. Tie the cord two fingers' length from the baby's abdomen and make another tie two fingers from the first one (Figure 2.2).

Cut the cord between the first and second tie. If the baby needs resuscitation, cut the cord immediately. If not, wait for **3–7 minutes** before cutting the cord

Step 5. Place the baby in skin-to-skin contact with the mother, cover with a warm cloth and initiate breastfeeding..

1. Tie the cord securely in two places:

- Tie the first one two fingers away from the baby's abdomen.
- Tie the second one four fingers away from the baby's abdomen.
- Make sure that tie is well secured; the thread you use to tie the cord must be clean.

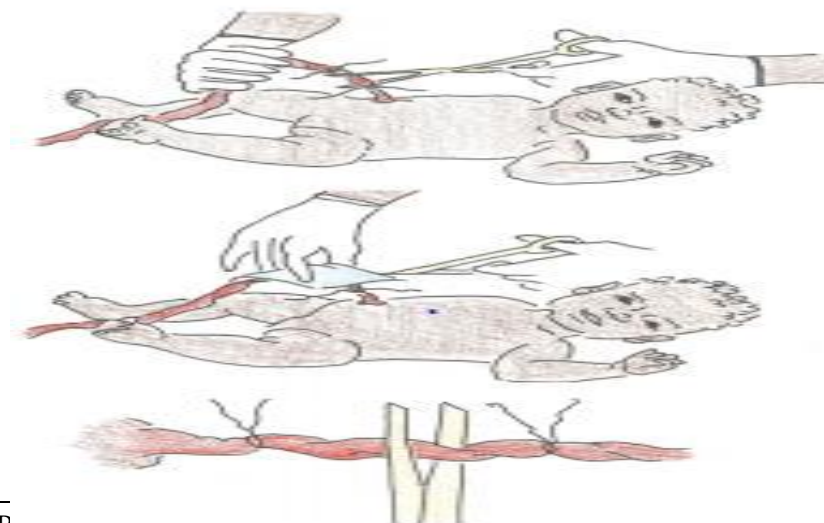


Figure 2.2 Tying and cutting the cord.



2. Cut the cord between the ties:

- Use a new razor blade, or a boiled one if it has been used before, or sterile scissors.
- Use a small piece of cloth or gauze to cover the part of the cord you are cutting so no blood splashes on you or on others.
- Be careful not to cut or injure the baby. Either cut away from the baby or place your hand between the cutting instrument and the baby.

3. Do not put anything on the cord stump. Then keep the baby warmth.

- . Put the baby on the mother's chest, between the breasts, for skin-to-skin warmth.
- Cover both mother and baby together with a warm cloth or blanket.
- Cover the baby's head. The first skin-to-skin contact should last uninterrupted for at least one hour after birth or until after the first breastfeed. The baby should not be bathed at birth because a bath can cool the baby dangerously.

After 24 hours, the baby can have the first sponge bath, if the temperature is stabilized.

If everything is normal, the mother should immediately start breastfeeding. For optimal breastfeeding you should do the following:

1. Help the mother begin breastfeeding within the first hour of birth.
2. Help the mother at the first feed. Make sure the baby has a **good position, attachment, and is sucking well**. Do not limit the length of time the baby feeds; early and unlimited breastfeeding gives the newborn energy to stay warm, nutrition to grow, and antibodies to fight infection.

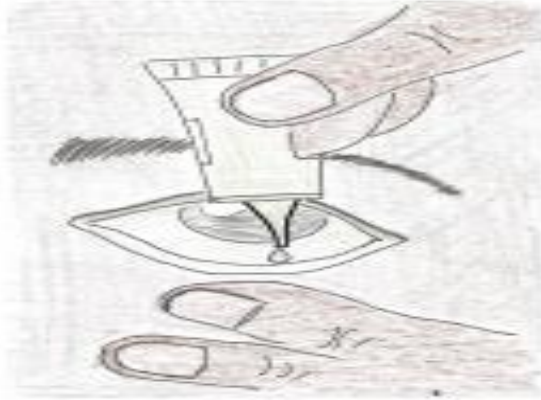


Figure 2.4 Initiating immediate breastfeeding.

Step 6 Give eye care (while the baby is held by its mother).

Shortly after breastfeeding and within one hour of being born, give the newborn eye care with an antimicrobial medication. Eye care protects the baby from serious eye infection which can result in blindness or even death. The steps for giving the baby eye care are these: First, wash your hands, and then using tetracycline 1% eye ointment:

1. Hold one eye open and apply a rice grain size of ointment along the inside of the lower eyelid. Make sure not to let the medicine dropper or tube touch the baby's eye or anything else (see Figure 2.5).
- 2 Repeat this step to put medication into the other eye.
3. Do not rinse out the eye medication.
- 4 Wash your hands again.



e

Figure 2.5 Putting tetracycline eye ointment into the eyes of the newborn baby.

e

Step 7. Give the baby **vitamin K, 1 mg by intramuscular injection (IM)** on the outside of the upper thigh (while the baby is held by its mother). After following correct infection prevention steps, with the other hand stretch the skin on either side of the injection site and place the needle straight into the outside of the baby's upper thigh (perpendicular to the skin). Then press the plunger to inject the medicine. You will be learning more about safe injection techniques in your practical skills training sessions.

Step 8. Weigh the baby. Weigh the baby an hour after birth or after the first breastfeed. If the baby weighs less than 1,500 gm you must refer the mother and baby urgently.

■ Why do you need to give essential newborn care?

□ At birth the newborn must adapt quickly to life outside the uterus. As a trained Health Extension Practitioner, you can take steps to ensure the baby is breathing well, kept warm and receives breast milk from the mother.

Newborn danger signs

Although many babies will have a healthy birth and will breathe easily and begin feeding soon after being placed on the mother's breast, other babies will have a range of needs, some urgent, in order to ensure their safety and wellbeing. It is very important that you check the newborn for the danger



signs, as the actions you take to help the newborn are crucial to ensure prompt and safe care. You also need to teach the mother to look for these signs in the newborn and advise her to seek care promptly if she observes any one of the danger signs.

Box 2.2 Newborn danger signs

Newborn danger signs; refer baby urgently if any of these is present:

- Breathing less than or equal to 30 or more than or equal to 60 breaths per minute, grunting, severe chest indrawing, blue tongue and lips, or gasping.
- Unable to suck or sucking poorly.
- Feels cold to touch or axillary temperature less than 35°C.
- Feels hot to touch or axillary temperature equal to or greater than 37.5°C.
- Red swollen eyelids and pus discharge from the eyes.
- Convulsion/fits/seizures.
- Jaundice/yellow skin (at age less than 24 hours or more than two weeks) involving soles of the feet and palms of the hands.
- Pallor.
- Bleeding.
- Repeated vomiting, swollen abdomen, no stool after 24 hours.

The axillary temperature is measured with a thermometer in the baby's armpit.

2.2.3 Low birth weight and its management

In this section you will learn about problems associated with prematurity (preterm, born before 37 weeks of pregnancy) and low birth weight (LBW) (a small for gestational age baby who did not grow well enough in the uterus during pregnancy) and how to manage these. This is important because LBW babies are more likely to have breathing and feeding problems and develop infection and die than babies with a birth weight of 2,500 gm or more.

LBW babies who survive are likely to have more medical and developmental problems than normal term babies. Most communities believe that these babies are born to die. As a Health Extension



Practitioner you have an important role to change this belief and help mothers and family members to provide the extra care the LBW baby needs.

Box 2.3 sets out some of the common problems for premature or LBW babies.

Box 2.3 Low birth weight babies: problems and explanations

Problems	Explanations
Breathing problems:	<ul style="list-style-type: none">- Immature lungs- Hypothermia (baby too cold)- Infections
Low body temperature:	<ul style="list-style-type: none">- Immature body temperature regulating system- Low body fat
Low blood sugar:	<ul style="list-style-type: none">- Low energy store
Feeding problem:	<ul style="list-style-type: none">- Inability to suck or coordinate breathing and swallowing- Small size- Low energy- Small stomach
Infections:	<ul style="list-style-type: none">- Not well developed immune system
Jaundice:	<ul style="list-style-type: none">- Not well developed liver to break down bilirubin (the substance found in blood that gives it red colour and helps in oxygen transport)
Bleeding problem:	<ul style="list-style-type: none">- Not well developed clotting mechanisms.

Management for low birth weight babies

The death rate for LBW babies is very high. With simple care you can support and advise the family how to care for a LBW baby and improve greatly their chances of survival.

Table 2.2 describes the treatment that you should give a LBW baby and the advice that you should give the baby's mother.

Table 2.2 Assessment, classification and treatment of low birth weight babies.

SIGNS	CLASSIFY AS	TREATMENT
Weight < 1,500gm or Gestational age < 32 weeks	Very low birth weight and/or Very preterm	<ul style="list-style-type: none"> Continue feeding with expressed breast milk Continue Kangaroo Mother Care Give Vitamin K 1mg IM on anterior mid thigh Refer URGENTLY with mother to hospital
Weight 1,500 to <2,500 grams or Gestational age 32-37 weeks	Low birth weight and/or Preterm	<ul style="list-style-type: none"> Kangaroo Mother Care (KMC) for babies less than 2,000 gm Counsel on optimal breastfeeding Counsel mother/family on prevention of infection Give vitamin K 1mg IM on anterior mid thigh Provide follow-up visits at age 6 hrs, 2 days & then every week for 6 weeks Advise mother when to return immediately Give OPVO and BCG vaccinations
Weight ≥ 2,500gm or Gestational age ≥ 37 weeks	Normal weight and/or Term	<ul style="list-style-type: none"> Counsel on optimal breastfeeding Counsel mother/family on prevention of infection Provide three follow-up visits at age 6-24 hrs, days 3 and 7 Give Vitamin K 1mg IM on anterior mid thigh Give OPVO and BCG vaccinations Advise mother when to return immediately

A/Kangaroo mother care (KMC)

Kangaroo mother care has three main components.

You will also learn more about KMC in your practical skills sessions.

1 Continuous skin-to-skin contact between the baby's front and the mother's chest:

Skin-to-skin contact starts at birth and is continued day and night.

There may be brief interruptions such as when the baby is being bathed. The baby wears only a hat or cloth, to keep its head warm, and a nappy/diaper.

2. Exclusive breastfeeding: the baby breastfeeds within one hour after birth and then every two to three hours. The baby is unlikely to be able to suck the breast properly so you will need to support the mother to express milk so that she can also cup feed her baby.

3. Support to the mother: the mother can continue to do what she normally does while providing KMC, for example cook, clean and sleep. However she needs support from you as the health worker, as well as her family and others in the community; by keeping the baby skin-to-skin for short periods while the mother rests or takes care of other duties.



Figure 2.7 Kangaroo mother care.

Support to the mother:

The mother can continue to do what she normally does while providing KMC, for example cook, clean and sleep. However she needs support from you as the health worker, as well as her family and others in the community; by keeping the baby skin-to-skin for short periods while the mother rests or takes care of other duties.

- How does KMC help the baby and the mother?
 - KMC helps the baby in stabilizing its temperature, making the breathing stable and regular, improving immunity, reducing infection and enabling it to feed better and gain weight faster. KMC helps the mother in becoming more attached to her baby emotionally; gives her confidence and ability to care for her small baby.

2.3 Management of bacterial infection and jaundice in the newborn and young infant

Introduction



As a Health Extension Practitioner you will encounter young infants who need your care. Young infants' illness forms a major part of health problems for children under five years old in Ethiopia, and your skills in being able to assess, classify and treat young infants is a crucial aspect of your role. In this study session you will learn how to manage a sick young infant from birth up to two months old. Young infants have special characteristics that must be considered when classifying their illness. They can become sick and die very quickly from serious bacterial infections. They frequently have only general signs, such as few movements, fever, or low body temperature. This study session will teach you how to assess, classify and treat a young infant. In particular, it focuses on how to assess and classify bacterial infection and jaundice in a young infant, when you need to refer a young infant for other urgent medical services and, as a Health Extension Practitioner, what **pre-referral treatment** (one dose of treatment) you can provide just before sending a young infant to a referral facility.

Learning Outcomes for Study Session 3

When you have studied this session, you should be able to:

- 3.1 Define and use correctly all of the key words printed in bold.
- 3.2 Assess and classify a young infant for possible bacterial infection and jaundice.
- 3.3 Determine if urgent referral of the young infant to hospital for medical treatment is needed.
- 3.4 Identify what pre-referral treatments are needed for young infants who need urgent referral.
- 3.5 Write a referral note.
- 3.6 Identify the range of treatment for young infants with local bacterial infection or jaundice who can be looked after at home.
- 3.7 Provide follow-up care for the young infant.

A young infant can become sick and die very quickly from serious bacterial infections such as **pneumonia, sepsis** and **meningitis**. Therefore if a young infant is brought to you because they are, or appear to be, sick it is important that you assess the infant carefully

➤ *Pneumonia is an infection of the lungs. Sepsis occurs when infection spreads to the*

bloodstream. Meningitis is an infection of the thin tissues that cover the brain and spinal cord.

2.3.1 Assessment and management of bacterial infection

Box 3.1 How to check for possible bacterial infection and jaundice at an initial visit

<p>ASK:</p> <ul style="list-style-type: none"> ❖ Is the infant having difficulty feeding? ❖ Has the infant had convulsions (fits)? 	<p>LOOK and FEEL:</p> <ul style="list-style-type: none"> ❖ Count breaths in 1 minute. Repeat if 60 or more breaths per minute. (<i>infant must be calm</i>) ❖ Look and listen for grunting ❖ Look for <u>severe</u> chest indrawing (<i>infant must be calm</i>) ❖ Measure axillary temperature ❖ Look at the umbilicus—is it red or draining pus? ❖ Look for skin pustules ❖ Look at the infant's movements. <i>If the infant is sleeping, ask the caretaker to wake him/her.</i> <ul style="list-style-type: none"> ○ Does the infant move on his/her own? <i>If the infant is not moving, gently stimulate him/her</i> ○ Does infant move only when stimulated, then stops? ○ Does the infant not move at all? ❖ Look for jaundice: are the palms and soles yellow? Is skin on the face or are the eyes yellow? 	<p>YOUNG INFANT MUST BE CALM</p>
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You are now going to look at each of these steps in more detail, first in relation to assessing for bacterial infection.

2.3.1.2 Assess for bacterial infection

Initial visit assessment

To assess a young infant you should:

- Check for signs of possible bacterial infection and jaundice.



Ask about diarrhoea. If the infant has diarrhoea, assess the related signs, including whether the young infant is dehydrated. Also classify whether the diarrhoea is persistent and whether dysentery is present.

- ✓ Check for feeding problems or low weight. This includes assessing breastfeeding
- ✓ Check the young infant's immunization status
- ✓ Assess any other problems, for example birth trauma and birth defects.

If it is clear that a young infant needs urgent referral, because you have classified serious bacterial infection or jaundice or another serious illness, there may not be time to do the breastfeeding assessment.

There are a number of questions you should ask, and signs that you should look for, to assess whether or not a young infant or child has bacterial infection. For example:

ASK: Is there any difficulty feeding?

Ask the mother this question.

Any difficulty mentioned by the mother is important. She may need counseling or specific help with any problems she is experiencing when feeding her baby. If the mother says that the young infant is not able to feed, assess breastfeeding or watch her try to feed the young infant with a cup to see what she means by this. Any young infant who is not able to feed may have a serious infection or other life-threatening problem.

ASK: Has the infant had convulsions?

Convulsions can be generalized or focal (an abnormal body movement that is limited to one or two parts of the body, such as twitching of the mouth and eyes, arms or legs). Focal convulsions can be faint and can easily be missed.

2.3.1.3 Assess for bacterial infection

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ASK: Is there any difficulty feeding?

Ask the mother this question. Any difficulty mentioned by the mother is important. She may need counselling or specific help with any problems she is experiencing when feeding her baby. If the mother says that the young infant is not able to feed, assess breastfeeding or watch her try to feed the young infant with a cup to see what she means by this. Any young infant who is not able to feed may have a serious infection or other life-threatening problem.

ASK: Has the infant had convulsions?

Convulsions can be generalized or focal (an abnormal body movement that is limited to one or two parts of the body, such as twitching of the mouth and eyes, arms or legs). Focal convulsions can be faint and can easily be missed. They can present with twitching of the fingers, toes or mouth or rolling of the eyes.

LOOK: Count the breaths in one minute. Repeat the count if the infant's breathing is fast

You must count the breaths the young infant takes in one minute to decide if the infant has fast breathing. Sixty breaths per minute or more is the cut-off used to identify fast breathing in a young infant. The child must be quiet and calm when you look at and listen to his breathing.

To count the number of breaths in one minute:

Use a watch with a second hand or a digital watch, look at the infant's chest and count the number of breaths in 60 seconds.

Look for breathing movement anywhere on the child's chest or abdomen. You can usually see breathing movements even in an infant who is dressed. If you cannot see this movement easily, ask the mother to lift the infant's shirt. If the infant starts to cry, ask the mother to calm the infant before you start counting.

If you are not sure about the number of breaths you counted (for example, if the infant was actively moving and it was difficult to watch the chest, or if the infant was upset or crying), repeat the count.

If the first **count is 60 breaths or more**, repeat the count. This is important because the breathing rate of a young infant is often irregular. A young infant will occasionally stop breathing for a few seconds, followed by a period of faster breathing. If the second count is also 60 breaths or more, the young infant has fast breathing.

Mild chest in-drawing is normal in a young infant because the chest wall is soft. Severe chest in-drawing is very deep and easy to see. Severe chest indrawing is a sign of pneumonia and is serious in a young infant.

- How do you decide whether a two-week-old infant has a mild or severe chest in-drawing?
 - If you look carefully at the young infant's bare chest and see the lower chest wall going in when the infant breathes in, and the infant is calm, you will know this is severe chest in-drawing. It is more than the mild chest in-drawing you might see simply because the chest wall is soft in a young infant.

LOOK and LISTEN for grunting

Grunting is the soft, short sounds a young infant makes when breathing out. Grunting occurs when an infant is having trouble breathing.

LOOK at the umbilicus — is it red or draining pus?

There may be some redness of the end of/around the umbilicus or the umbilicus may be draining pus (Figure 3.1). The cord usually drops from the umbilicus by one week of age.

Feel and measure

Measure the axillary (underarm) temperature (or feel for fever or low body temperature). Fever (where the axillary temperature is 37.5°C or more) is uncommon in the first two months of life. If a young infant has a fever, this may mean the infant has a serious bacterial infection. A fever may be the only sign of a serious bacterial infection. Young infants can also respond to infection by developing hypothermia (dropping of body temperature to below 35.5°C). Low body temperature is defined as body temperature between 35.5 and 36.4°C.



Figure 3.1 Baby with umbilical infection. (Source: National IMNCI Guideline)



If you do not have a thermometer, feel the infant's stomach or axilla (underarm) and determine if it feels hot or unusually cool.

LOOK for skin pustules

Examine the skin on the entire body. Skin pustules are red spots or blisters which contain pus.

LOOK at the young infant's movements. Are they fewer than normal?

Young infants often sleep most of the time, and this is not a sign of illness. Even when awake, a healthy young infant will usually not watch the mother and a health worker while they talk, as an older infant or young child would. If a young infant does not wake up during the assessment, ask the mother to wake him.

A young infant who is awake will normally move his arms or legs or turn his head several times in a minute if you watch him closely. You should observe the infant's movements while you do the assessment

2.3.1.4 Assess for jaundice

When you assess for jaundice, you look to see whether the child has yellow discoloration in the eyes and skin (for example, look at the infant's palms and soles to see if they are yellow).

Jaundice is yellow discoloration of skin. Almost all newborns may have 'physiological jaundice' during the first week of life due to several physiological changes taking place after birth. Physiological jaundice usually appears between 48 and 72 hours of age; maximum intensity is seen on the fourth or fifth day (the seventh day in preterm newborns) and disappears by 14 days. It does not extend to the palms and soles, and does not need any treatment. However, if jaundice appears on the first day, persists beyond 14 days and extends to the young infant's palms and soles of the feet, it indicates pathological jaundice, which could lead to brain damage.

To look for jaundice, you should press the infant's forehead with your fingers to blanch the skin, then remove your fingers and look for yellow discoloration under natural light. If there is yellow discoloration, the infant has jaundice. Look at the eyes of the infant for yellowish discoloration as well. To assess for severity, repeat the process with the infant's palms and soles too.

2.3.1.5. Classify bacterial infection and jaundice

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If you have assessed a young infant as having bacterial infection and/or jaundice, you will need to classify the level of seriousness so you know whether to make an urgent referral for relevant medical treatment, or whether you can provide the right treatment yourself.

As you have learned in the study session on immediate newborn care, most classification tables have three rows. Classifications are colour-coded into pink, yellow or green. The colour of the row tells you if the young infant or the child has a serious illness. You can then quickly choose the appropriate treatment.

A classification in the pink row means that the young infant needs urgent attention and referral or admission for in-patient care. This is a severe classification

A classification in the yellow row means that the young infant needs an appropriate antibiotic or other treatment. The treatment includes you teaching the mother how to give the oral drugs or to treat local infections at home and advising her about caring for the young infant at home and when she should return for a follow-up visit.

A classification in the green row means the young infant is unlikely to have serious bacterial infection and will therefore not need specific medical treatment such as antibiotics. You will need to teach the mother how to care for her young infant at home. For example, you might advise her on feeding her sick young infant or giving fluid for diarrhoea.



Box 3.1 jaundice

How to check for at an initial visit

possible bacterial infection and

ASK:

- ❖ Is the infant having difficulty feeding?
- ❖ Has the infant had convulsions (fits)?

LOOK and FEEL:

- ❖ Count breaths in 1 minute. Repeat if 60 or more breaths per minute. *(infant must be calm)*
- ❖ Look and listen for grunting
- ❖ Look for severe chest indrawing *(infant must be calm)*
- ❖ Measure axillary temperature
- ❖ Look at the umbilicus—is it red or draining pus?
- ❖ Look for skin pustules
- ❖ Look at the infant's movements. *If the infant is sleeping, ask the caretaker to wake him/her.*
 - Does the infant move on his/her own?
If the infant is not moving, gently stimulate him/her
 - Does infant move only when stimulated, then stops?
 - Does the infant not move at all?
- ❖ Look for jaundice: are the palms and soles yellow? Is skin on the face or are the eyes yellow?

YOUNG
INFANT
MUST BE
CALM

2.3.1.6 Low body temperature

In the absence of signs of possible serious bacterial infection and severe jaundice, if the axillary temperature of a young infant is between 35.5 and 36.4°C, the baby is probably not be sick enough to be referred. Low body temperature in such a case may be due to environmental factors and may not be due to infection. Such an infant should be warmed using kangaroo mother care (skin-to-skin contact) for one hour. First you should treat the young infant to prevent low blood sugar in one of the ways outlined above. You should reassess the young infant after one hour for signs of possible serious bacterial infection and record the infant's temperature again.

2.3.1.7 Severe jaundice

A sick young infant with jaundice may have physiological jaundice. As you read earlier in this study session, this kind of jaundice can become worse, so you need to follow this up. You should give the mother advice on home care for the young infant, and ask her to return for a follow-up visit in two days so you can re-assess the level of jaundice present in the child.

Yellowish bile pigment that is an intermediate product of the breakdown of hemoglobin in the liver) which can cause brain damage. Therefore, you would need to refer a young infant with severe jaundice to an appropriate health facility for investigation and appropriate treatment.



Before you arrange for the young infant to be referred to hospital you should ensure that he is treated to prevent low blood sugar, and that he is kept warm, both while referral is being arranged and on the way to the hospital.

- Robel is a sick young infant with the classification possible serious bacterial infection or very severe disease and you decide that he needs urgent referral. What would you do before the mother takes Robel to the health center?
- The two main points to advise the mother are for her to breastfeed Robel or to give him expressed breast milk to prevent low blood sugar, and to keep him warm to prevent low body temperature. You are now going to do an activity which will help you to review the steps for assessing and classifying sick young infants and give you an opportunity to practice entering information

Box 3.2 Recording form for Shashie

<i>MANAGEMENT OF THE SICK YOUNG INFANT AGE BIRTH UP TO 2 MONTHS</i>		
Name: <u>Shashie</u> Age: <u>5 weeks</u> Sex: <u>Female</u> Weight: <u>4kg</u>		
Temperature: <u>37°C</u>		
ASK: What are the infant's problems? <u>Rash</u> Initial visit? <input checked="" type="checkbox"/> Follow-up Visit? <input type="checkbox"/>		
<i>ASSESS (Circle all signs present)</i>		<i>CLASSIFY</i>
<i>ASSESS FOR BIRTH ASPHYXIA (immediately after birth)</i>		
<ul style="list-style-type: none"> • Not breathing • Is breathing poorly (less than 30 per minute) • Gasping 		
<i>ASSESS FOR BIRTH WEIGHT AND GESTATIONAL AGE (the first 7 days of life)</i>		
<ul style="list-style-type: none"> • Ask gestational age; <32 wks, 32-37wks, ≥ 37wks • Weigh the baby: <1500g, 1500-2500g, ≥2500g 		
<i>CHECK FOR POSSIBLE BACTERIAL INFECTION and JAUNDICE</i>		
<ul style="list-style-type: none"> • Has the infant had convulsions? • Is there feeding difficulty? 	<ul style="list-style-type: none"> • Count the breaths in one minute. <u>55</u> breaths per minute • Repeat if elevated _____ Fast breathing? • Look for severe chest in-drawing. • Look and listen for grunting. • Look at umbilicus. Is it red or draining pus? • Fever (temperature 37.5°C or feels hot) or body temperature below 35.5°C (or feels cool) or body temperature between 35.5-36.4°C. • Look for <u>skin pustules</u>. • Look at young infant's movements. Does the infant move only when stimulated? Does the infant not move even when stimulated? • Look for jaundice? • Are the palms and soles yellow? • Is skin on the face or eyes yellow? 	<i>Local Bacterial Infection</i>





Follow-up care for a young infant with jaundice

If the young infant was previously assessed as having jaundice then you should follow the steps outlined below.

Two days after initial assessment:

- Check for danger signs in the newborn
- Counsel and support optimal breastfeeding
- Follow-up of kangaroo mother care
- Follow-up of counselling given during previous visits
- Counsel mother/family to protect baby from infection
 - Give one capsule of 200,000 IU vitamin A to the mother if not given before
- Immunize the baby with OPV and BCG if not given before.

Ask about new problems.

Look for jaundice – are the palms and soles yellow?

- If the palms and soles are yellow, or the infant is aged 14 days or more, refer the infant to hospital.
- If the palms and soles are not yellow and the infant is less than 14 days old, and jaundice has not decreased, advise the mother on home care, when to return immediately and ask her to return for a follow-up visit in two days.

If the jaundice has started decreasing, reassure the mother and ask her to continue home care. Ask her to return for a follow-up visit when the infant is two weeks old. If the jaundice continues beyond two weeks of age, refer the infant to the hospital.

2.3.2 Identify appropriate treatment

You are now going to learn how to identify and give pre-referral treatment when a young infant has signs of possible serious bacterial infection and how to treat the young infant who does not need referral. You will also look at how to treat for jaundice

Table 2.3.2 Classification and treatment of bacterial infection and jaundice.

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT
<ul style="list-style-type: none"> • Not feeding well or • Convulsions/convulsing now or • Fast breathing (60 breaths per minute or more) or • Severe chest in-drawing or • Grunting or • Fever (37.5°C or above or feels hot) or • Low body temperature (less than 35.5°C or feels cold) or • Movement only when stimulated or no movement even when stimulated 	<p><i>POSSIBLE SERIOUS BACTERIAL INFECTION Or VERY SEVERE DISEASE</i></p>	<ul style="list-style-type: none"> ▶ Give first dose of intramuscular Gentamycine and oral Amoxacilline ▶ Treat to prevent low blood sugar ▶ Warm the young infant by skin-to-skin contact if temperature less than 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
<ul style="list-style-type: none"> • Red umbilicus or draining pus or • Skin pustules 	<p><i>LOCAL BACTERIAL INFECTION</i></p>	<ul style="list-style-type: none"> ▶ Refer URGENTLY to hospital ▶ Teach mother to treat local infections at home. ▶ Advise mother to return for follow-up visit with the young infant in 2 days.
<ul style="list-style-type: none"> • None of the signs of possible serious bacterial infection or local bacterial infection 	<p><i>SEVERE DISEASE, or LOCAL INFECTION UNLIKELY</i></p>	<ul style="list-style-type: none"> ▶ Advise mother to give home care for the young infant.
<ul style="list-style-type: none"> • Temperature between 35.5–36.4°C (both values inclusive) 	<p><i>LOW BODY TEMPERATURE</i></p>	<ul style="list-style-type: none"> ▶ Treat to prevent low blood sugar ▶ Warm the young infant using skin- to-skin contact for one hour and reassess. If temperature remains same or worse, refer. ▶ Advise mother to return for follow up visit with young infant in 2 days.
<ul style="list-style-type: none"> • Palms and/or soles yellow or • Skin or eyes yellow, age <24 hours or age 14 days or more 	<p><i>SEVERE JAUNDICE</i></p>	<ul style="list-style-type: none"> ▶ Treat to prevent low blood sugar ▶ Warm the young infant by skin- to-skin contact if temperature less than 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.
<ul style="list-style-type: none"> • Only skin or eyes yellow 	<p><i>JAUNDICE</i></p>	<ul style="list-style-type: none"> ▶ Advise mother to give home care for the young infant ▶ Advise mother when to return for follow-up visit with young infant in 2 days



2.3.6.1 Possible serious bacterial infection or very severe disease

An infant may have pneumonia, sepsis or meningitis, and it can be difficult to distinguish between these infections. It is not necessary for you to make this distinction, however, since your responsibility for a young infant with any sign of possible serious bacterial infection is to refer the young infant to hospital as a matter of urgency. Before referral, there are several things you can do to minimize the risk to the young infant's health. For example:

- Give a first dose of intramuscular and oral antibiotics.
- Treat to prevent low blood sugar; this can be done by:
 - the mother breastfeeding the child
 - if the young infant is unable to breastfeed, offering expressed breast milk or a breast milk substitute
 - offering sugar water if neither of the above options is available.
 - The young infant should have 30-50 ml of milk or sugar water before departure for medical treatment.

2.3.6.2. Local bacterial infection

Young infants with local bacterial infection usually have an infected umbilicus or a skin infection. The young infant needs to be referred to the health centre to get an appropriate oral antibiotic which can be administered by the mother for five days. The mother should therefore treat the local infection at home and give home care to her child and then return for a follow-up visit to the health post within two days to be certain the infection is improving. Bacterial infections can progress rapidly in young infants, so it is important that the mother understands she must return for you to check her young infant's progress. You will learn in Study Session 14 of this Module how to teach mothers to treat local infections at home.



Follow-up care for a young infant with local bacterial infection

Two days after initial assessment:

- Look at the umbilicus. Is it red or draining pus? Does the redness extend to the skin?
- Look at the skin pustules. Are there many or severe pustules?

Treatment:

- If the pus or redness remains the same or is worse, refer the infant to hospital.
- If the pus and redness have improved, tell the mother to continue giving the five days of antibiotic and treating the local infection at home.

2.3.6.3 Severe disease or local infection unlikely

A young infant who is unlikely to have either severe disease or local infection does not require any specific treatment. Advise the mother to give home care for her young infant.

2.4. Assess and classify cough or difficulty breathing

Introduction

Coughs or difficult breathing are common problems in children under five years of age in Ethiopia. In some children the cause of cough could be pneumonia. Pneumonia is a serious disease that may cause death. However, these deaths can be prevented by early identification and treatment, so it is important that you know the signs to look for and what action you should take when you think a child brought to your health post has pneumonia. In this study session you will learn how to assess and classify a sick child with a cough or difficult breathing. You will also learn how to treat and give follow-up care.

When you have studied this session, you should be able to:

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- 2.4.1 Define and use correctly all of the key words printed in bold.
- 2.4.2 Record information accurately about a child.
- 2.4.3 Identify when a child has fast breathing.
- 2.4.4 Identify a child with chest in-drawing.
- 2.4.5 Identify stridor in a calm child.
- 2.4.6 Assess and classify coughs or difficult breathing.

Treat and give follow-up care for a child with cough or difficult breathing

2.4.1 Assessing coughs or difficult breathing

In order to assess coughs or difficult breathing, you need to know about the structure of the airways. Figure 4.1 shows the terms for the main structures that you need to know. You may already be familiar with some or even all of the terms.

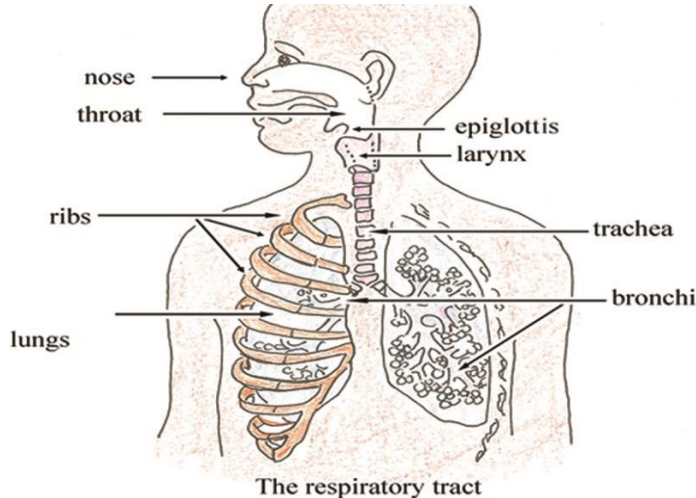


Figure 4.1 **The respiratory tract.**

You can see in Figure 4.1 that the airway (or respiratory tract) structures include the nose, throat, larynx, trachea and bronchi (the main air tubes inside the lungs). Coughs or difficult breathing may occur when there is an infection of the respiratory tract. These infections may be severe respiratory tract infections such as pneumonia (acute) which require antibiotics for treatment, or they can be mild infections such as a cold, which can be treated by the family at home.



Respiratory infections can occur in any part of the respiratory tract such as the nose, throat, larynx, trachea, air passages or lungs. A child with cough or difficult breathing may have pneumonia or another severe respiratory infection. Pneumonia is an infection of the lungs. Both bacteria and viruses can cause pneumonia. In developing countries, pneumonia is often due to bacteria. The most common are *Streptococcus pneumoniae* and *Hemophilus influenzae*. Children with bacterial pneumonia may die from hypoxia (too little oxygen) or sepsis (generalized infection).

Many children are brought to the clinic with less serious respiratory infections. Most children with cough or difficult breathing have only a mild infection. For example, a child who has a cold may cough because nasal discharge drips down the back of the throat. Or the child may have a viral infection of the bronchi called bronchitis. These children are not seriously ill. They do not need treatment with antibiotics. Their families can manage them at home.

- ASK: Does child have cough or difficult breathing?
- ASK: For how long has the child had cough or difficult breathing?
- COUNT the breaths in one minute

If the child is 2 to 12 months,
50 breaths per minute or more is fast

If the child is 12 months to 5 years,
40 breaths per minute or more is fast

- LOOK for chest indrawing
- LOOK and LISTEN for stridor or wheeze

Classification of the child with cough or difficult breathing

Severe pneumonia

- Cough or difficult breathing with or without fast breathing AND
- Chest indrawing OR
- Danger signs such as lethargy or unconsciousness, convulsions, or inability to eat or drink OR
- Stridor in calm child

Pneumonia

- Cough or difficult breathing AND
- Fast breathing

Cough or cold

- Cough but NOT fast breathing, chest indrawing and no danger sign

Managing child with severe pneumonia

- If possible, refer to hospital
- Give fluids
- Give oxygen if available
- Antibiotics
- Bronchodilator (salbutamol) if the child is wheezing
- Paracetamol every 6 hours if the child has a fever
- Keep infant warm, dry and well wrapped

Managing child with pneumonia

- Administer oral amoxicillin
- Teach the mother to give the antibiotic
- Encourage the child to eat and drink
- Encourage mother to

Managing child with cough or cold

- Teach the mother to soothe the throat and relieve the cough with safe remedy (warm tea with sugar)
- Advise mother to watch for fast or difficult breathing. She should return immediately if it develops.
- If cough or difficult breathing more than 2 weeks, refer for

- ASK: Does child have cough or difficult breathing?
- ASK: For how long has the child had cough or difficult breathing?
- COUNT the breaths in one minute

If the child is 2 to 12 months,
50 breaths per minute or more is fast

If the child is 12 months to 5 years,
40 breaths per minute or more is fast

- LOOK for chest indrawing
- LOOK and LISTEN for stridor or wheeze

Classification of the child with cough or difficult breathing

Severe pneumonia

- Cough or difficult breathing with or without fast breathing AND
- Chest indrawing OR
- Danger signs such as lethargy or unconsciousness, convulsions, or inability to eat or drink OR
- Stridor in calm child

Pneumonia

- Cough or difficult breathing AND
- Fast breathing

Cough or cold

- Cough but NOT fast breathing, chest indrawing and no danger sign

Managing child with severe pneumonia

- If possible, refer to hospital
- Give fluids
- Give oxygen if available
- Antibiotics
- Bronchodilator (salbutamol) if the child is wheezing
- Paracetamol every 6 hours if the child has a fever
- Keep infant warm, dry and well wrapped

Managing child with pneumonia

- Administer oral amoxicillin
- Teach the mother to give the antibiotic
- Encourage the child to eat and drink
- Encourage mother to

Managing child with cough or cold

- Teach the mother to soothe the throat and relieve the cough with safe remedy (warm tea with sugar)
- Advise mother to watch for fast or difficult breathing. She should return immediately if it develops.
- If cough or difficult breathing more than 2 weeks, refer for



Health Extension Practitioners must be able to identify the few very sick children who have cough or difficult breathing, which need treatment with antibiotics. Fortunately, it is possible to identify almost all cases of pneumonia by checking for these two clinical signs: fast breathing and chest in-drawing. Stridor in a child (see the definition below) can also be a sign of pneumonia or another very severe disease.

You are now going to look at the steps involved in assessing and classifying children with cough or difficult breathing.

For all sick children whom you encounter in your practice, you should ask the mother or caregiver whether the child has cough or difficult breathing. You should then ask how long the child has had cough or difficult breathing.

Then you need to assess for the following:

Fast breathing: breathing rate per minute higher than normal for the age group.

Chest in-drawing: the lower chest wall (lower ribs) goes in when the child breathes in.

Stridor: a harsh noise which is made when the child breathes in.

ASSESS whether the child has cough or any difficult breathing

Difficult breathing is any unusual pattern of breathing. Mothers describe this in different ways. They may say that their child's breathing is 'fast' or 'noisy' or 'interrupted.'

If the mother says the child does not have cough or difficult breathing, you should still look at the child yourself to see whether you think the child has either of these symptoms. If the child does not have cough or difficult breathing, you do not need to assess the child further for signs related to either of these symptoms. You should go on to ask about the next main symptom, which is diarrhoea (you will read about how to assess and classify diarrhoea in Study Session 5).

If the mother answers 'Yes' to your question about whether the child has cough or difficult breathing, you should ask her the next question.

ASK: how long has the child had cough or difficult breathing?

A child who has had cough or difficult breathing for more than 21 days has a chronic cough. This may be a sign of tuberculosis, asthma, whooping cough or another respiratory problem.

COUNT the number of breaths the child takes in one minute

Count the breathing rate as you would in a young infant. The cut-off for fast breathing depends on the child's age. Young infants usually breathe faster than older infants and young children.

If the child is:	The child has fast breathing if you count:
2 months up to 12 months	50 breaths per minute or more

12 months up to 5 years: 40 breaths per minute or more

LOOK for chest in-drawing

You learned about chest in-drawing (also called subcostal redrawing or subcostal retraction) and how to examine a young infant for this sign, in Study Session 3 of this Module. In a child age two months up to five years, if chest in-drawing is clearly visible and present all the time during an examination, it is a sign of severe pneumonia or very severe disease (see Figure 4.2 on the next page, which illustrates in-drawing). Unlike in the young infant, mild chest in-drawing is not normal in older infants and children.

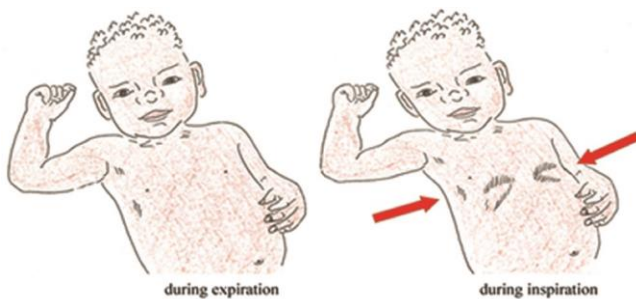


Figure 4.2 Signs of chest in-drawing in a sick child

LISTEN for stridor

Stridor happens when there is a swelling of the larynx, trachea or epiglottis (see Figure 4.1 to remind yourself where these structures are). This swelling interferes with air entering the lungs. It can be life-



threatening when the swelling causes the child's airway to be blocked. A child who has stridor when calm has a dangerous condition.

Listen for stridor when the child breathes in. Put your ear near the child's mouth because stridor can be difficult to hear. A child who is not very ill may have stridor only when crying or upset. Be sure to listen for stridor when the child is calm.

■ What three signs in a sick child indicate the possibility of pneumonia or another very severe disease?

□ If you identify any general danger sign, fast breathing, or chest in-drawing, and if you hear a harsh noise from the child when calm and breathing in (stridor), the child is likely to have severe pneumonia or another very severe disease.

2.3.4 Classifying coughs or difficulty in breathing

After assessing the child, your next step is to classify the cough or difficult breathing to determine the severity of the child's illness. **How to classify cough or difficult breathing**

CLASSIFY means to make a decision about the severity of the illness. For each of the child's main symptoms, you will select a category, or "classification," that corresponds to the severity of the disease. Classifications are not exact disease diagnoses. Instead, they are categories that are used to determine appropriate action or treatment.

Each classification table on the *ASSESS AND CLASSIFY* chart lists clinical signs of illness and their classifications. The tables are divided into three columns titled signs, classify as, and treatment. Most classification tables also have three rows. If the chart is printed in colour, each row is coloured *pink*, *yellow* or *green*. The coloured rows signify the severity of the illness.

To use a classification table, start at the top of the **SIGNS** column on the left side of the table. Read down the column and decide if the child has the sign or not. When you reach a sign that the child has, stop. The child will be classified in that row. In this way, you will always assign the child to the more serious classification

To classify a child you need the classification table, a section of which is reproduced below (Table 4.1).

The treatment column is included – you will be looking at treatment in more detail in Section 4.3 of this study session.

Table 4.1 Classification table for coughs and difficult breathing.

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print)
<ul style="list-style-type: none"> Any general danger sign or Chest indrawing or Stridor in calm child 	<p>SEVERE PNEUMONIA OR VERY SEVERE DISEASE</p>	<ul style="list-style-type: none"> Give first dose of Cotrimoxazole Refer URGENTLY to hospital
<ul style="list-style-type: none"> Fast breathing 	<p>PNEUMONIA</p>	<ul style="list-style-type: none"> Give Cotrimoxazole for 5 days. Soothe the throat and relieve the cough with a safe remedy. Advise mother when to return immediately. Follow-up in 2 days.
<ul style="list-style-type: none"> No signs of pneumonia or very severe disease. 	<p>NO PNEUMONIA: COUGH OR COLD</p>	<ul style="list-style-type: none"> If coughing more than 21 days, refer for assessment. Soothe the throat and relieve the cough with a safe remedy Advise mother when to return immediately. Follow-up in 5 days if not improving.

- If the child has fast breathing, but does not have signs in the top row of the classification table, you should select the classification in the middle (yellow) row: pneumonia (see Box 4.2 below)
- If the child does not have the severe classification, look at the middle (yellow) row
- If the child has a general danger sign (you learned about general danger signs in Study Session 1 of this Module), chest in-drawing or stridor, you should select the severe classification given in the top (pink) row of the table: *severe pneumonia* or **very severe disease**.
- Look at the top row in the classification table which sets out the signs you need to assess.
- Look at the top row in the classification table which sets out the signs you need to assess.
- If the child does not have any of the signs in the top (pink) or middle (yellow) row, select the classification in the bottom (green) row: no pneumonia: cough or cold.

Box4.2 Classification of pneumonia

<ul style="list-style-type: none"> Any general danger sign or Chest indrawing or Stridor in calm child 	SEVERE PNEUMONIA OR VERY SEVERE DISEASE
<ul style="list-style-type: none"> Fast breathing 	PNEUMONIA
<ul style="list-style-type: none"> No signs of pneumonia or very severe disease 	NO PNEUMONIA: COUGH OR COLD

2.4.2.1 How to use the classification table:

There are three possible classifications for a child with a cough or difficult breathing:

- Severe pneumonia or very severe disease, or
- Pneumonia, or no pneumonia or cold

To classify a cough or difficult breathing:

If the child has signs from more than one row, always select the more serious classification.

- If a child has cough, a general danger sign and fast breathing, how would you classify the child?
 - You should classify the child with the more serious classification – severe pneumonia or very severe disease (see Box 4.3 on the next page).

Whenever you use a classification table, you should start with the top (pink) row.

A child classified as having severe pneumonia or very severe disease needs urgent referral to a hospital.

Box 4.3 Classification of severe pneumonia

<ul style="list-style-type: none"> Any general danger sign or Chest indrawing or Stridor in calm child 	SEVERE PNEUMONIA OR VERY SEVERE DISEASE
<ul style="list-style-type: none"> Fast breathing 	PNEUMONIA
<ul style="list-style-type: none"> No signs of pneumonia or very severe disease 	NO PNEUMONIA: COUGH OR COLD



SIGNS

CLASSIFY AS

IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print.)

<ul style="list-style-type: none"> Any general danger sign or Chest indrawing or Stridor in calm child. 	<p>SEVERE PNEUMONIA OR VERY SEVERE DISEASE</p>	<ul style="list-style-type: none"> Give first dose of an appropriate antibiotic. Refer URGENTLY to hospital.
<ul style="list-style-type: none"> Fast breathing 	<p>PNEUMONIA</p>	<ul style="list-style-type: none"> Give an appropriate oral antibiotic for 5 days. Soothe the throat and relieve the cough with a safe remedy. Advise mother when to return immediately. Follow-up in 2 days.
<p>No signs of pneumonia or very severe disease.</p>	<p>NO PNEUMONIA: COUGH OR COLD</p>	<ul style="list-style-type: none"> If coughing more than 30 days, refer for assessment. Soothe the throat and relieve the cough with a safe remedy. Advise mother when to return immediately. Follow-up in 5 days if not improving.

2.3.5 Treatment of cough or difficult breathing

The treatment of a child's cough or difficult breathing will depend on your assessment and classification of their illness. This section looks at the different treatments depending on the level of classification.

2.3.5.1 Treatment for severe pneumonia or very severe disease

A child classified as having severe pneumonia or very severe disease is seriously ill. The child needs urgent referral to a hospital for treatments such as oxygen or injectable antibiotics.

If a child has been classified with severe pneumonia or a very severe disease you should give the child the first dose of Cotrimoxazole (see Table 4.2 in Section 4.3.2 below) before the child leaves your health post. The antibiotic helps prevent severe pneumonia from becoming worse.

Then refer the child urgently to the hospital.

Referring a child to the hospital

There are four steps you should follow when referring a child to the hospital:

Explain to the mother 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 are:



- She thinks that hospitals are places where people often die, and she fears that her child will die there too.
- She does not think that the hospital will help her child.

2.4.3.2 Treatment for pneumonia

If you have classified the child as having pneumonia you can treat the child without referring him or her to hospital. The child will need treating with antibiotics.

Table 4.2 below sets out the oral antibiotics from which you can select the appropriate antibiotic and the dose. The first-line antibiotic is the drug that you give first. If the child does not respond to the first antibiotic (cotrimoxazole) you gave, then you should replace the first antibiotic with another one; the latter one is called second-line antibiotic (for example, amoxicillin). Among the three types of cotrimoxazole formulation, choose the one that is available in your health post.

Table 4.2 Antibiotic dosage for pneumonia.

AGE or WEIGHT	COTRIMOXAZOLE (Trimethoprim + Sulphamethoxazole) Give two times daily for five days			AMOXICILLIN Give three times daily for five days	
	ADULT TABLET 80 mg Trimethoprim + 400 mg Sulphamethoxazole	PAEDIATRIC TABLET 20mg Trimethoprim + 100 mg Sulphamethoxazole	SYRUP 40 mg Trimethoprim + 200 mg Sulphamethoxazole per 5 ml	TABLET 250 mg	SYRUP 125 mg per 5 ml
2 months up to 12 months (4–10 kg)	½	2	5 ml	½	5 ml
12 months up to 5 years (10–19 kg)	1	3	7.5 ml	1	10 ml

2.4.3.3. Treatment for no pneumonia: cough or cold

A child with 'no pneumonia: cough or cold' does not need an antibiotic. You should give the mother advice about good home care. Teach her how to soothe the child's throat and relieve the cough with a

safe remedy such as breast milk for exclusively breastfed infants, or home fluids such as tea with honey or fruit juice. Cough syrups are usually harmful so advise the mother that she should avoid using these. Advise her to watch for fast or difficult breathing and to return to the health post if either one of these develops in the child.

A child with a cold normally improves in one to two weeks. However, a child who has chronic cough (a cough lasting more than 21 days) may have tuberculosis, asthma, whooping cough or another problem. You should refer the child with a chronic cough to the hospital for further assessment.

2.4.4 Follow-up care for pneumonia

If a child has been classified with pneumonia, it is important that the mother is told to return to the health post in two days' time for a follow-up visit. You should assess the child for cough or difficult breathing in the way outlined in Box 4.4.

Box 4.4 Follow-up care for pneumonia

After 2 days:

Check the child for general danger signs.
Assess the child for cough or difficult breathing.

} Use ASSESS & CLASSIFY chart

Ask:

- Is the child breathing slower?
- Is there less fever?
- Is the child eating better?

Treatment:

- If **chest in-drawing or general dangers sign present**, give a dose of amoxicillin. Then refer URGENTLY TO HOSPITAL.
- If **breathing rate, fever, and eating are the same or worse**, change to the amoxicillin and advise the mother to return in 2 days. If no amoxicillin available, refer. (If this child had measles within the last 3 months or is known or suspected to have symptomatic HIV infection, refer).
- If **breathing slower, less fever, or eating better**, complete the 5 days of antibiotic.



You should always refer a child to hospital if there are general danger signs or chest in-drawing.

The following case study will help you check your understanding of what you have read so far in this study session. It continues on the next page.



The Health Extension Practitioner asked the mother, ‘How long has Aziz had this cough?’ His mother said that Aziz had been coughing for six or seven days. Aziz sat quietly on his mother’s lap. The Health Extension Practitioner counted the number of breaths the child took in a minute and counted 41 breaths. She thought, ‘Since Aziz is over 12 months of age, the cut-off for determining fast breathing is 40. He has fast breathing’.

The Health Extension Practitioner did not see any chest in-drawing. She did not hear stridor

The chart below shows you how the Health Extension Practitioner record Aziza’s case information & sign of illness

MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS		
Child's Name: <u>Aziz</u> Age: <u>18 months</u> Weight: <u>11.5</u> kg Temperature: <u>37.5</u> °C		
ASK: What are the child's problems? <u>cough, trouble breathing</u>		Initial Visit? <input checked="" type="checkbox"/> Follow-up Visit? <input type="checkbox"/>
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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Remember to use danger sign when selecting classifications.
DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? • For how long? <u>6</u> Days		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> • Count the breaths in one minute. <u>41</u> breaths per minute. <u>Fast breathing</u> • Look for chest indrawing. • Look and listen for stridor.

To classify Aziz’s illness, the Health Extension Practitioner looked at the classification table

Case Study 4.1 Aziz’s case

Aziz is 18 months old. He weighs 11.5 kg. His temperature is 37.5 C. His mother brought him to the health post because he had cough. She says he was having trouble breathing. This is his initial visit for this illness.

The Health Extension Practitioner checked Aziz for general danger signs. Aziz was able to drink. He had not been vomiting. He had not had convulsions. He was not convulsing, lethargic or unconscious

The Health Extension Practitioner classified Aziz as having pneumonia and she wrote this down on the Recording Form (see below).

<ul style="list-style-type: none"> Any general danger sign or Chest indrawing or Stridor in calm child 	SEVERE PNEUMONIA OR VERY SEVERE DISEASE
<ul style="list-style-type: none"> Fast breathing 	PNEUMONIA
<ul style="list-style-type: none"> No signs of pneumonia or very severe disease 	NO PNEUMONIA: COUGH OR COLD

To assess cough or difficult breathing, the steps you should take are:

- look for general danger signs
- ask about duration of the cough or difficult breathing
- count the breathing rate ◦ look for chest in-drawing ◦ listen for stridor.

Your assessment will enable you to classify the child's cough or difficult breathing and determine what treatment you should give, including referring the child urgently to hospital if they have severe pneumonia or very severe disease.

When using a classification table you should always begin with the top (pink) row and if a child has signs in more than one row you should always select the more serious classification.

There are four steps you should take when referring a child to the hospital: explain the need for referral, reassuring and supporting the mother, writing a referral note, and giving the mother supplies and instructions for the journey.



Case Study 4.2 for SAQ 4.1

Getu is six months old. He weighs 5.5 kg. His temperature is 38°C. His mother says he has had a cough for two days. The Health Extension Practitioner checked for general danger signs. The mother says that Getu is able to breastfeed and that he has not vomited during this illness. He has not had convulsions. Getu is not convulsing, lethargic or unconscious during his visit to the health post.

The Health Extension Practitioner said to the mother, 'I want to check Getu's cough. You said he has had a cough for two days now. I am going to count his breathing. He will need to remain calm while I do this'.

The Health Extension Practitioner counted 58 breaths per minute. She did not see chest in-drawing and did not hear stridor.



2.7. Malnutrition and anemia in the sick child

Introduction

This study session provides you with the knowledge and skills to undertake the accurate assessment and classification of children suffering from malnutrition and anaemia. This session will help you integrate the theory of assessment and classification of these diseases with the practice of treating these diseases. It also provides you with the knowledge of how to recognize signs of malnutrition and anaemia. You will need this information for Study Session 8 which will teach you how to manage and treat malnutrition and anaemia in a sick child.

When you have studied this session, you should be able to:

- 7.1 Define and use correctly all of the key words printed in bold.
- 7.2 Correctly assess the sick child for the presence of specific signs of acute malnutrition and anaemia.
- 7.3 Correctly classify the sick child for malnutrition and anaemia based on the presence or absence of specific signs.
- 7.4 Identify and distinguish moderate, severe and acute malnutrition.
- 7.5 Classify the different causes of malnutrition

Malnutrition

Malnutrition is a condition that occurs when a person does not get enough nutrients. Malnutrition mainly affects children under five in developing countries and results in poor health. The malnourished child will also perform poorly at school and will be a less productive adult in the future.

2.7.1 Causes of malnutrition

There are several causes of malnutrition that can vary from country to country. They can be classified as root causes, underlying causes and immediate causes. Immediate causes of malnutrition are:

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Inadequate dietary intake: this is when a child is not getting enough nutrients from his or her food to meet the nutritional needs of its body.

Frequent attacks of illness: a child who has had frequent illnesses can develop malnutrition. During illness the child's appetite decreases; the food eaten might not be absorbed or it may be vomited; the food that the child eats is not used efficiently, or it may not be enough for the increased metabolic need of the child's body.

2.7.2 Assessment and classification of malnutrition

There are two types of malnutrition:

- Protein-energy malnutrition
- Micronutrient malnutrition or deficiency.

Protein-energy malnutrition

Protein-energy malnutrition, as its name implies, is lack of adequate protein and/or calories in the body. This can be acute or chronic.

Chronic protein-energy malnutrition is manifested by stunting, which means short height or length for age. Stunting occurs as a result of lack of food, or an illness which has been there for a long period of time.

Acute protein-energy malnutrition is the term used to cover both moderate and severe wasting and nutritional oedema, which is swelling of parts of the body due to fluid building up in the tissues (also known as kwashiorkor). Acute protein-energy malnutrition occurs as a result of a recent lack of nutrients or illness. This study session focuses in particular on acute malnutrition.

Micronutrient malnutrition or deficiency

A child whose diet lacks the recommended amounts of essential vitamins and minerals can develop micronutrient malnutrition. The child may not be eating enough of the recommended amounts of specific vitamins (such as vitamin A) or minerals (such as iron). Examples of foods that are rich in vitamin A include liver, egg yolk, milk and milk products from animals, as well as green leaves and



yellow fruits and vegetables from plants. Foods that are rich in iron include animal sources such as flesh or meat, and foods prepared from blood and organs such as the liver of birds and fish.

Other causes of anaemia

A child can also develop anaemia as a result of:

- Infections

- Parasites such as hookworm or whipworm: these parasites can cause blood loss from the gut and lead to anaemia

- Malaria: often anaemia is a result of a combination of malnutrition and malaria.

Checking the sick child for malnutrition and anaemia

All children who are brought to the health post for consultation with you should be checked for malnutrition and anaemia. A mother may bring her child to the health post because the child has an acute illness and specific complaints that may point to malnutrition or anaemia. A sick child can be malnourished, but the child's family may not have realised this problem.

A child with malnutrition has a higher risk of disease and death. Even children with mild and moderate malnutrition have an increased risk of death. Identifying children with malnutrition and treating them is therefore a critically important part of your role as a Health Extension Practitioner. Some malnutrition cases can be treated at home, while severe cases need treatment in an out-patient therapeutic programme (OTP), or referral to a health centre or hospital for special feeding, blood transfusion, or specific treatment of a disease contributing to malnutrition (such as tuberculosis or HIV).

You are now going to learn how you should assess all sick children for malnutrition and anaemia.

7.3 Assessing for malnutrition

There are a number of indicators which tell you that a child is malnourished.

2.7.3.1 Visible severe wasting in infants less than six months of age

An infant with visible severe wasting has marasmus, a form of severe malnutrition. A child has this sign if he is very thin, has reduced subcutaneous fat, and looks like skin and bones. Some children

are thin but do not have visible severe wasting. A child with visible severe wasting needs urgent treatment and you should refer him to a hospital.

To look for visible severe wasting, remove the child's clothes. Look for severe wasting of the muscles of shoulders, arms, buttocks and legs. Look to see if the outline of the child's ribs is easily seen. Look at the child's hips. They may look small when you compare them with the chest and abdomen. Look at the child from the side to see if the fat of the buttocks is missing.

When wasting is extreme, there are many folds of skin on the buttocks and thighs. It looks as if the child is wearing baggy pants. The illustrations and photo in Figure 7.1 show you how a child with visible severe wasting looks.

The face of a child with visible severe wasting may still look normal. The child's abdomen may be large or distended.

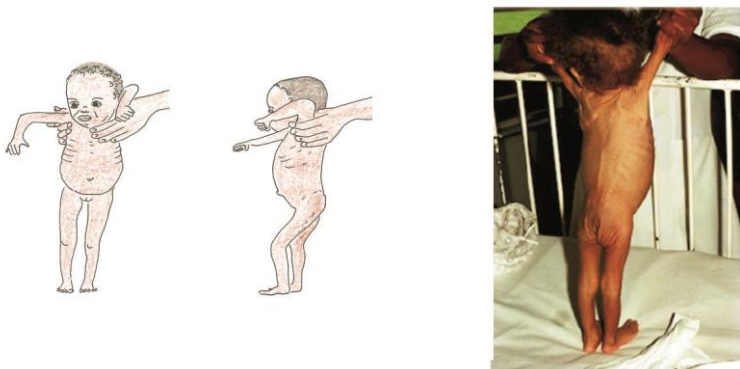
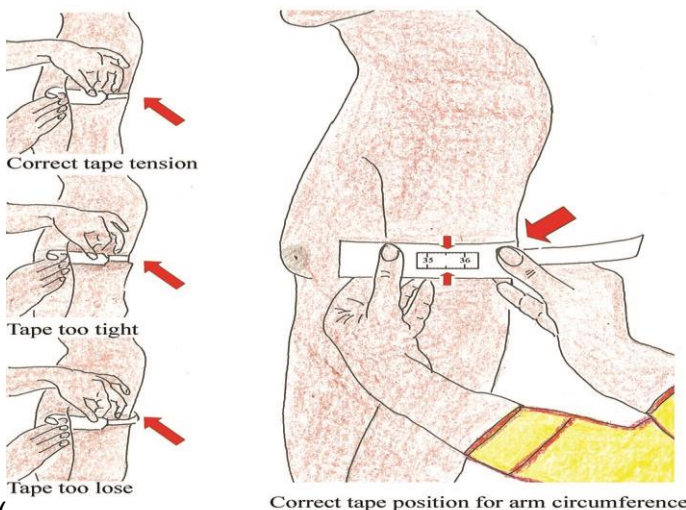


Figure 7.1 Infant with visible severe



wasting. (

Figure 7.2 Measuring MUAC.

2.7.3.2 Look and feel for oedema of both feet

A child with oedema of both feet may have kwashiorkor. To determine the presence of oedema, press gently with your thumb on the topside of each foot for at least three seconds (or a count of 101; 102; 103); the child has pitting oedema if a dent remains following the pressing. Look at Figure 7.3 which shows you how a child's feet look when the dent remains.



2.7.3.3 The mid upper arm circumference (MUAC)

For children aged six months or more, the most feasible way to determine wasting or acute malnutrition is by measuring their mid upper arm circumference (MUAC). A MUAC of less than 11.0 cm indicates severe acute malnutrition.

Subcutaneous means 'under the skin'.

Steps of MUAC measurement

Ask the mother to remove any clothing that covers the child's arm. If possible the child should stand erect and sideways to the measurer.

2.7.3.4 Measuring a child's weigh

Knowing the child's weight will be important for at least three reasons.

It will enable you:-



- ✓ To monitor the growth of a child over time using a standard WHO growth chart, and to counsel the mother on feeding if the child's weight is found to be low.
- ✓ Knowing the child's weight will be important for at least three reasons. It will enable you:
- ✓ To evaluate the progress of a child who is receiving nutritional treatment in an outpatient therapeutic programme (OTP) or supplementary feeding programme (SFP).

Baseline data for and subsequent follow-up of the child's weight is therefore needed to decide the management of that child.

To determine the dose of drug for the sick child.

Children are weighed by using a 25 kg hanging spring scale graduated to 0.1 kg. You should not forget to re-adjust the scale to zero before each weighing. A plastic washing bowl should be attached by four ropes that go underneath the bowl. The bowl needs to be close to the ground in case the child falls out, and to make the child feel secure during weighing. If the basin is dirtied, then it should be cleaned with disinfectant. This is much more comfortable and familiar for the child; it can be used for ill children and is easily cleaned.

As a Health Extension Practitioner you are expected to determine the classification of a child for malnutrition on the basis of visible severe wasting, oedema and MUAC measurements, and to treat the child based on the presence or absence of these signs. Weight in particular is used for monitoring the child and when making a decision whether to discharge a child from an OTP.

2.7.3.5 Assessing appetite

If a child aged six months or above has a MUAC less than 11 cm or pitting oedema of both feet and has no medical complications, you should assess the child's appetite.

An appetite test is not needed when the child has any one of the following: medical complications that require in-patient care, pneumonia, persistent diarrhoea, watery diarrhoea, dysentery, malaria, measles, low body temperature or high fever, open skin lesions or signs of vitamin A deficiency.

The appetite test

The appetite test has a number of steps you should follow:

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The appetite test should be conducted in a separate quiet area.

You should explain to the caregiver the purpose of the appetite test and how it will be carried out.

The caregiver, where possible, should wash their hands.



7.4 Weighing the child.

The caregiver should sit comfortably with the child on their lap and either offer the child ready-to-use therapeutic food (RUTF) such as Plumpy'nut® or BP-100® from the packet, or put a small amount on her finger and give it to the child.

The caregiver should offer the child the RUTF gently, encouraging the child all the time. If the child refuses, then the caregiver should continue to quietly encourage the child and take time over the test. The test usually takes 15-30 minutes but may take up to one hour. The child must not be forced to take the RUTF.

The child needs to be offered plenty of water to drink from a cup when taking the RUTF.

The child needs to be offered plenty of water to drink from a cup when taking the RUTF.

You interpret the result of the appetite test in the following way:

Pass: a child that takes at least the amount shown in Table 7.1 below passes the appetite test. You should:

- ✓ Explain to the caregiver the choices of treatment and decide with the caregiver whether the child should be treated as an out-patient or an in-patient (nearly all caregivers will opt for out-patient treatment).
- ✓ refer the child to the Out-patient Therapeutic Programme (OTP) for registration and initiation of treatment.



- ✓ Fail: a child that does not take at least the amount of RUTF shown in Table 7.1 below should be referred for in-patient care. You should:
 - ✓ Explain to the caregiver the reasons for recommending in-patient care; decide with the caregiver whether the child will be treated as an in-patient or an out-patient.

Refer the child to the nearest therapeutic feeding unit (TFU) or hospital.

The appetite test should always be performed carefully. You should always offer treatment as an in-patient for children who fail their appetite tests. If there is any doubt, however, then you should refer the child for in-patient treatment until their appetite returns

Table 7.1 Appetite test table.

APPETITE TEST			
This is the minimum amount that malnourished children should take to pass the appetite test			
Plumpy'nut®		BP-100®	
Body weight (kg)	Sachet	Body weight (kg)	Bars
<4	1/8–1/4	<5	1/4–1/2
4 up to 10	1/4–1/2	5 up to 10	1/2–3/4
10 up to 15	1/2–3/4	10 up to 15	3/4–1
>15	3/4–1	>15	1–1 1/2

Study Session 2.7.4 Assessing for anaemia

There is one very clear way in which you can assess whether a sick child brought to your health post has anaemia, and this is to look for palmar pallor. Palmar pallor is unusual paleness of the skin of the palms. It is a sign of anaemia.

The steps for this are described below.

To see if the child has palmar pallor, look at the skin of the child's palm.

Hold the child's palm open by grasping it gently from the side as illustrated in Figure 7.5. Do not stretch the fingers backwards. This may cause pallor by blocking the blood supply.

Classification of anaemia

A child assessed for anaemia will have one of the following three classifications:

- I. Severe anaemia: when there is severe palmar pallor

II. .Anaemia: when there is some palmar pallor

III. .No anaemia: when there is no palmar pallor.

Compare the colour of the child's palm with your own palm and with the palms of other children. If the skin of the child's palm is pale, but has some pink areas, the child has some palmar pallor. If the skin of the palm is very pale or so pale that it looks white, the child has severe palmar pallor.

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print.)
<ul style="list-style-type: none"> ● Visible severe wasting or ● Severe palmar pallor or ● Oedema of both feet. 	<p style="text-align: center;">SEVERE MALNUTRITION OR SEVERE ANAEMIA</p>	<ul style="list-style-type: none"> ➤ Give Vitamin A. ➤ Refer URGENTLY to hospital.
<ul style="list-style-type: none"> ● Some palmar pallor or ● Very low weight for age. 	<p style="text-align: center;">ANAEMIA OR VERY LOW WEIGHT</p>	<ul style="list-style-type: none"> ➤ Assess the child's feeding and counsel the mother on feeding according to the FOOD box on the <i>COUNSEL THE MOTHER</i> chart. <ul style="list-style-type: none"> — If feeding problem, follow-up in 5 days. ➤ If pallor: <ul style="list-style-type: none"> — Give iron. — Give oral antimalarial if high malaria risk. — Give mebendazole if child is 2 years or older and has not had a dose in the previous 6 months. ➤ Advise mother when to return immediately. ➤ If pallor, follow-up in 14 days. If very low weight for age, follow-up in 30 days.
<ul style="list-style-type: none"> ● Not very low weight for age and no other signs or malnutrition. 	<p style="text-align: center;">NO ANAEMIA AND NOT VERY LOW WEIGHT</p>	<ul style="list-style-type: none"> ➤ 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 <i>COUNSEL THE MOTHER</i> chart. <ul style="list-style-type: none"> — If feeding problem, follow-up in 5 days. ➤ Advise mother when to return immediately.

Box 7.1 Summary of assessment steps for malnutrition and anaemia

Malnutrition

Look and feel:

For children under six months:

- Look for pitting oedema of both feet
- Look for visible severe wasting.

For children aged six months or more:

- Look for pitting oedema of both feet
- Determine if the MUAC is less than 11.0 cm
- If the MUAC is less than 11.0 cm or there is oedema of both feet and there is no medical complication, you



should assess the child's appetite.

Anaemia

- Look for palmar pallor. If it is present, is it:
 - Severe palmar pallor?
 - Some palmar pallor?

Classification of malnutrition and anaemia

You have now seen how to assess the sick child for malnutrition and anaemia. The next step is deciding the classification of the child's illness based on the presence or absence of specific signs you have identified during the assessment process.

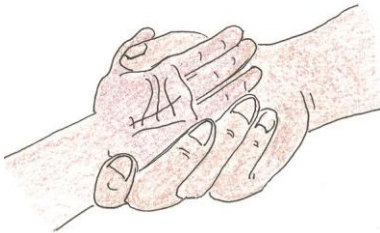


Figure 7.5 Checking for palmar pallor.

Classification of malnutrition

There are four possible classifications for malnutrition and these are set out below.

1. Severe complicated malnutrition

A child will be classified as having severe complicated malnutrition in the following cases:

If the child's age is *below six months* and the child has

- o **Visible severe wasting**, or **Oedema of both feet** OR

If the child's age is six months or above and the child has,

- o **A MUAC less than 11 cm**, or
- o **Oedema of both feet and**
- o **Any medical complication.**

2. Severe uncomplicated malnutrition

A child will be classified as having severe uncomplicated malnutrition in the following cases:

If a child's age is *six months* or above and the child has

- o **A MUAC less than 11 cm**, or
- o **Oedema of both feet and**



° No medical complications and ° Passes the appetite test.

3. Moderate acute malnutrition

A child will be classified as having moderate acute malnutrition in the following cases:

If a child's age is six months or above and the child has

A MUAC of 11 cm to less than 12 cm and No oedema of both feet.

4. No acute malnutrition

A child will be classified as having no acute malnutrition in the following cases:

No visible severe wasting and No pitting oedema of both feet and

Has a MUAC greater than 12 cm.

7.5.2 Classification of anaemia

A child assessed for anaemia will have one of the following three classifications:

Severe anaemia: when there is severe palmar pallor

Anaemia: when there is some palmar pallor

No anaemia: when there is no palmar pallor.

7.5.3 Classification of malnutrition and anaemia using a classification table

Now you have seen that when a sick child is checked for malnutrition and anaemia there will be at least two classifications: one from the four possible classifications of acute malnutrition, and another one from the three possible classifications of anaemia.

Table 7.2 summarizes the points you have read in this study session and shows you how to assess and classify the sick child for malnutrition and anaemia using the Assess and Classify chart.



Table 7.2 Assess and Classify chart for malnutrition and anaemia.

LOOK AND FEEL:	SIGNS	CLASSIFICATION
For children less than 6 months: – Look for pitting oedema of both feet – Look for visible severe wasting <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> Classify age < 6 month for NUTRITIONAL STATUS </div>	Visible severe wasting or Pitting oedema of both feet	SEVERE COMPLICATED MALNUTRITION
	No visible severe wasting and No oedema of both feet	NO ACUTE MALNUTRITION
For children aged 6 months or more – Determine if MUAC is: Less than 11.0 cm OR 11-<12 cm OR >12 cm – Look for pitting oedema of both feet – Assess appetite if MUAC <11.0 cm or oedema of both feet AND No medical complication: Pneumonia or Watery diarrhoea or Dysentery or Fever/low temperature or measles <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> Classify age > 6 month for NUTRITIONAL STATUS </div>	MUAC less than 11 cm or Pitting edema of both feet and Any medical complication: Pneumonia; Watery diarrhoea; Dysentery, Fever/low temperature or Fail appetite test	SEVERE COMPLICATED MALNUTRITION
	MUAC less than 11 cm or Pitting oedema of both feet and No Medical complication: Pneumonia or Watery diarrhoea or Dysentery or Fever/low temperature and Passed appetite test	SEVERE UNCOMPLICATED MALNUTRITION
	MUAC 11 cm to <12 cm and No oedema of both feet	MODERATE ACUTE MALNUTRITION
	MUAC ≥12 cm or more , And No oedema of both feet	NO ACUTE MALNUTRITION
	CHECK FOR ANAEMIA Look for palmar pallor	
Severe palmar pallor?	Severe palmar pallor	SEVERE ANAEMIA
Some palmar pallor?	Some palmar pallor	ANAEMIA
	No palmar pallor	NO ANAEMIA

This study session equipped you with the knowledge and skills to make an accurate assessment of a child suffering with malnutrition and anaemia. You have also looked at how to identify different types of malnutrition and anaemia and to spot the signs or symptoms of these diseases.

Summary of Study Session 7

In Study Session 7, you have learned that:

The two main types of malnutrition are protein-energy malnutrition and micronutrient deficiency.

A sign of chronic protein-energy malnutrition is stunting which is shortness of height for the child's age



A sign of acute protein energy malnutrition is severe wasting of the body muscles, which is more visible in the shoulders, arms, legs, and the buttocks; or an oedema, which is swelling of the body due to fluid buildup in the tissues.

To check for oedema, you have to press your thumbs gently for three seconds on the dorsal part (top) of the feet. If after removing your thumb a dent is visible, then the child has pitting oedema.

A micronutrient deficiency such as a lack of iron in the blood causes a type of anaemia that can result in increased exposure to infections, fatigue, short attention span and poor concentration

Monitoring weight is crucial in treating malnutrition and anaemia; it enables you to monitor the growth of a child over time and helps you to evaluate the progress of a child who is under nutritional treatment in an outpatient therapeutic programme (OTP) or a supplementary feeding programme. It also helps you to determine the dose of a drug to give a sick child

It is necessary to do an appetite test when a child is 6 months or more, has a MUAC less than 11cm or has pitting oedema of both feet, and no medical complications.

It is not necessary to do an appetite test for a child with severe acute malnutrition when the child's illness requires inpatient care (for example, if the child has pneumonia, persistent diarrhoea, measles, dysentery, malaria, open lesions or vitamin 'A' deficiency, or if the child is less than 6 months of age).

2.8 HIV infection in infant and children

Introduction

Ethiopia is one of the Sub-Saharan African countries that is hit hard by the HIV/AIDS pandemic. Estimated HIV prevalence in the adult population is 2.4% (more than one million adults are living with HIV/AIDS). Currently an estimated 79,000 children under 14 years are living with HIV/AIDS. It is expected that more than 26,000 children require antiretroviral therapy (ART), but at the beginning of April 2009 only 10,077 children were receiving it. Without treatment 75% of all HIV-infected children will die before their fifth year. The main way that children get HIV is from their HIV-infected mother. Not all HIV-infected mothers transmit the virus to their children. If 20 HIV-infected mothers give birth, only seven children will be HIV-infected (35%). Children who are HIV-infected will have repeated other infections. Commonly occurring infections include pneumonia, persistent diarrhoea, ear

discharge and oral thrush. The other common condition in HIV-infected children is malnutrition. You will learn about all of these in this study session.

2.8.1 Assess for HIV infection

An important aspect of supporting a mother with a child who has HIV is to develop a good professional relationship with her so that she is able to trust you and give you the information you need to provide the best possible services for her and her child. If you ask questions in a thoughtless or judgmental way, the mother may be reluctant to give you the information that you need. Good communication skills will help you to establish a rapport with the mother and help her to understand how to look after the sick child.



Figure 9.1 Supporting a mother who has HIV.

When you assess a child for HIV infection, first you should ask about the HIV status of the mother and the HIV status of the child. Then you should note if the child has the following conditions:

- Pneumonia or severe pneumonia now .
- Persistent or severe persistent diarrhoea now.
- Acute ear infection with ear discharge or chronic ear infection.
- Moderate acute malnutrition or severe malnutrition.

If the mother or child is known to be HIV-positive, or if the child has one or more of the above conditions, you should assess the child for HIV infection. Box 8.1 below reproduces the relevant section from the Assess and Classify chart which tells you how to assess a child for HIV infection.

Box 9.1 below reproduces the relevant section from the Assess and Classify chart which tells you how to assess a child for HIV infection.

Box 9.1 Assess for HIV infection

ASSESS FOR HIV INFECTION	
<p>Check for HIV infection:</p> <ul style="list-style-type: none"> ➤ If the mother or child has a positive HIV test or ➤ If the child has one or more of the following classifications now: <ul style="list-style-type: none"> • Pneumonia or severe pneumonia • Persistent diarrhoea or severe persistent diarrhoea • Acute ear infection with discharge, or chronic ear infection • Moderate acute malnutrition or severe malnutrition 	
<p style="text-align: center;">NOTE OR ASK:</p> <ul style="list-style-type: none"> • Is the mother known to have a positive HIV test? • Is the child known to have a positive HIV test? • Does the child have PNEUMONIA or SEVERE PNEUMONIA/VERY SEVERE DISEASE now? • Does the child have PERSISTENT / SEVERE PERSISTENT DIARRHOEA now? • Does the child have EAR DISCHARGE now? • Does the child have MODERATE ACUTE MALNUTRITION / SEVERE MALNUTRITION? 	<p style="text-align: center;">LOOK AND FEEL:</p> <ul style="list-style-type: none"> • Oral thrush • Bilateral Parotid enlargement for 14 days or more • Enlarged lymph node in two or more of the following sites: neck, axilla, or groin

You are now going to look at how to test for and interpret HIV test results.

Testing infants and children for HIV The presence of HIV infection in a child can be detected by doing tests. Different tests are available to diagnose HIV infection; the first one is serological and the other is virological.

8.2.1 Positive HIV test

Serological (or antibody) tests (also called rapid tests) detect antibodies made by immune cells in response to the virus. They do not detect the virus itself. An HIV-infected mother produces antibodies in her blood. These antibodies from the mother can get into the baby during delivery and may stay in the child's blood until the age of 18 months. This means that a positive antibody test in children under the age of 18 months is not reliable and does not confirm that the child is truly HIV-infected. Serological or



antibody tests are used to confirm HIV infection in children who are more than 18 months of age. If a rapid antibody test is done for a child older than 18 months and the result is positive, then that child is HIV-infected. Virological tests, such as DNA PCR tests, directly detect HIV in the blood. These tests can therefore detect HIV infection in the child before the child is 18 months old. If a DNA PCR test is done for an infant and the result is positive, then that infant is HIV-infected

As you read above, when you ask a mother about her or her child's HIV status, it is important that you pose the question in a careful way and maintain confidentiality as much as possible since this is sensitive information.

■ A two-month-old baby has a positive virological test. Is the baby HIV infected?

□ Yes, because virological tests detect HIV in the blood and a positive test shows the presence of HIV, whatever the age of the baby and whether or not the baby is exclusively breastfed.

\■ A two-month-old breastfeeding baby has a positive antibody (serological) test. Is the baby HIV-infected?

□ It is difficult to conclude in this case because, at two months, an antibody test cannot be used to confirm HIV infection. Antibodies can pass from mother to baby and may stay in the baby's blood for as long as 18 months.

■ A 20-month-old child who has stopped breastfeeding more than six weeks ago has a positive HIV antibody test. Is that child HIV-infected? □ Yes, because in a child who is 18 months or older, an antibody test can confirm the diagnosis of HIV infection.

■ A nine-month-old breastfeeding baby has a negative virological test. Is the baby HIV-infected?

Commonly occurring infections in HIVinfected children

In this section you will learn about some of the commonly occurring illnesses in HIV-infected children. You have already read about some of these infections in earlier study sessions in this Module. However, as we said above, infants and children with HIV are more likely to get these infections and get them more frequently. Therefore it is important for you to look at these infections again in the context of providing care for an infant or child with HIV.

.1. Pneumonia

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Pneumonia is the leading cause of hospital admissions and death in HIV-infected children and it presents in the same way in both infected and uninfected children. The difference is that bacterial pneumonia occurs repeatedly in children with HIV infection. Pneumocystis pneumonia (PCP) is another cause of pneumonia in HIV-infected children that you need to know about. It occurs most commonly during the first year of life. PCP is one of the major causes of severe pneumonia and death in HIV-infected infants. To protect HIV-infected infants and children from developing PCP and other infections you should give cotrimoxazole. All HIV-exposed infants (infants born from HIV-infected mothers) should also receive cotrimoxazole prophylaxis against PCP from six weeks of age until it is established that the child is not HIV-infected.

2. Persistent diarrhea

This occurs with more frequency in HIV-infected children, and HIV-infected children with persistent diarrhoea are at higher risk of death compared with HIV-negative children with persistent diarrhoea. A child is said to have persistent diarrhoea if the diarrhoea lasts for 14 days or more.

3. Ear discharge

Acute and chronic ear infections are common in children with symptomatic HIV infection (i.e. symptoms of HIV disease are present); however, the management is the same as that of HIV-negative children.

4. Malnutrition

Symptomatic HIV infection is more frequently associated with moderate or severe degree of acute malnutrition. Micronutrient deficiencies are also common in children with HIV infection.

5. Oral thrush Oral thrush is a thick white coating of the tongue and inside of the cheek. Unlike milk curds, it is difficult to remove and if removed it leaves small bleeding areas. It is the most common oral condition seen in HIV-infected children. Oral thrush is associated with difficulty or pain in swallowing or vomiting. It is caused by a fungus called *Candida*.

6. Parotid enlargement Bilateral

parotid enlargements are swellings in front of both ears which do not cause pain and fever and last for more than 14 days. If you see bilateral parotid enlargement in a child, then the child is likely to be HIV-infected

7. Lymph node enlargement

You should try to palpate for lymph nodes around the neck, in the axilla and groin. If you palpate lymph nodes and the size is greater than 1 cm then the lymph nodes are enlarged. Persistent generalized lymphadenopathy is defined as the development of enlarged lymph nodes in two or more of the following sites: neck, axilla and groin. Generalized lymphadenopathy is one of the most common early clinical presentations of HIV-infected children.



Figure 9.2 Children with enlarged lymph nodes. (Source: Teaching Aids at Low Cost, TALC)

Classify for HIV infection There are five classifications in the Assess and Classify chart. The relevant section of the chart is reproduced in Table 9.1 below.

Table 8.1 **Classifying an infant or child for HIV infection.**

Table 9.1 Classifying an infant or child for HIV infection.

<ul style="list-style-type: none"> ▪ Positive HIV antibody test in a child 18 months and above, OR, Positive PCR test at any age AND <ul style="list-style-type: none"> ▪ Two or more of the following HIV - related conditions <ul style="list-style-type: none"> ▪ Pneumonia/Severe Pneumonia ▪ Persistent diarrhoea/severe persistent diarrhoea ▪ Ear discharge ▪ Moderate acute malnutrition/Severe Malnutrition ▪ Oral thrush ▪ Enlarged palpable lymph nodes in two or more sites ▪ Bilateral Parotid enlargement for 14 days or more 	CONFIRMED SYMPTOMATIC HIV INFECTION	<ul style="list-style-type: none"> ➤ Give Cotrimoxazole prophylaxis ➤ Treat HIV-related conditions if present (e.g., thrush) ➤ Give multivitamin supplement ➤ Assess the child's' feeding and counsel as necessary ➤ Counsel the mother about her own HIV status and arrange counselling and testing if necessary ➤ Advise the mother on home care ➤ Refer for ARV
<ul style="list-style-type: none"> ▪ Positive HIV antibody test in a child 18 months and above, OR, Positive PCR test at any age AND <ul style="list-style-type: none"> ▪ Less than two HIV- related conditions 	CONFIRMED HIV INFECTION	<ul style="list-style-type: none"> ➤ Give Cotrimoxazole prophylaxis ➤ Treat HIV-related conditions if present (e.g., thrush) ➤ Give multivitamin supplement ➤ Assess child's feeding and counsel as necessary ➤ Advise the mother on home care ➤ Counsel the mother about her own HIV status and arrange counselling and testing if necessary ➤ Refer for ARV
<ul style="list-style-type: none"> ▪ Positive HIV antibody test in a child under 18 months, OR, No HIV test result in a child AND <ul style="list-style-type: none"> ▪ Two or more HIV-related conditions 	SUSPECTED SYMPTOMATIC HIV INFECTION	<ul style="list-style-type: none"> ➤ Give Cotrimoxazole prophylaxis ➤ Treat HIV-related conditions if present (e.g., thrush) ➤ Give multivitamin supplement ➤ Assess the child's' feeding and counsel as necessary ➤ Advise on benefits of HIV test and do HIV test or refer for VCT (for both mother and child) ➤ Advise the mother on home care ➤ Follow-up in 14 days
<ul style="list-style-type: none"> ▪ Positive HIV antibody test in a child under 18 months, OR <ul style="list-style-type: none"> ▪ Mother HIV Positive 	POSSIBLE HIV INFECTION or (HIV EXPOSED)	<ul style="list-style-type: none"> ➤ Give appropriate feeding advice ➤ Treat HIV-related conditions if present (e.g., thrush) ➤ Give Cotrimoxazole prophylaxis and test for HIV at 18 months (If child still breastfed repeat HIV testing 6 weeks after stopping breastfeeding) ➤ Assess child's feeding and counsel as necessary ➤ Follow-up in 14 days
<ul style="list-style-type: none"> ▪ Not enough signs to classify as symptomatic or possible HIV infection OR <ul style="list-style-type: none"> ▪ Negative HIV test in the mother or the child 	HIV INFECTION UNLIKELY	<ul style="list-style-type: none"> ➤ Treat, counsel and f/up existing infections; advise on home care ➤ Encourage HIV testing if not tested

1 Confirmed symptomatic HIV infection

If a serological test for HIV in a child older than 18 months, or a DNA PCR test at any age, is positive and if you find two or more HIV-related conditions, you should classify the child as confirmed symptomatic HIV infection. .

2 Confirmed HIV infection



If a child older than 18 months has a positive HIV serology, or a child at any age has a positive DNA PCR test, even if they have fewer than two HIV related conditions, you should classify the child as conf.

3 Suspected symptomatic HIV infection

A child with any two or more of the HIV-related conditions who either has no test result or, if under 18 months of age, has a positive serology test, the child should be classified as suspected symptomatic HIV infection.

4 Possible HIV infection

This classification is made when there are not enough signs to classify as confirmed/suspected symptomatic HIV infection. Possible HIV infections indicates HIV exposure evidenced by a positive HIV antibody test either in a child younger than 18 months old or in the mother.

5 HIV infection unlikely

When there are not enough signs and the HIV test of both the mother and the child are either not known or negative, you should classify the child as HIV infection unlikely.

2.9 Infant and young child feeding

Breastfeeding Giving your baby a healthy diet is one of the most important things you can do for them, not just now, but for their future years too. Breastfeeding is good for babies because breast milk contains antibodies that help protect against illnesses. Breastfeeding can be really rewarding for you too. It is a chance to bond with your child and reduces the risk of breast cancer, ovarian cancer, and p Breastfeeding is good for babies because breast milk contains antibodies that help protect against illnesses.ost-menopausal osteoporosis.

In the beginning it may seem like you are doing nothing but feeding, but you will both gradually get into a routine and the amount of milk you produce will settle. Breastfeeding can sometimes take a little while for you and your baby to get used to, but once established, breastfeeding is easy for most mothers and babies. It is important your baby learns to attach properly to your breast as this will help you both to breastfeed well.



1. Facts on infant and young child feeding

It has been estimated that about 2 million child deaths could be averted every year through effective breastfeeding. Exclusively breastfed infants have at least 2½ times fewer illness episodes than infants fed breast-milk substitutes. Infants are as much as 25 times more likely to die from diarrhoea in the first 6 months of life if not exclusively breast fed. Among children under one year, those who are not breastfed are 3 times more likely to die of respiratory infection than those who are exclusively breast fed. From: Jones, 2003; Chandra, 1979; Feachem, 1984; and Victora, 1987.

2. Facts on infant and young child feeding

Infants exclusively breastfed for 4 or more months have half the mean number of acute otitis media episodes of those not breastfed at all. In low-income communities, the cost of cow's milk or powdered milk, plus bottles, teats, and fuel for boiling water, can consume 25 to 50% of a family's income. Breast feeding contributes to natural birth spacing, providing 30% more protection against pregnancy than all the organized family planning programmes in the developing world. From: Duncan et al, 1993; UNICEF/WHO/UNESCO/UNFPAA, 1993; and Kleinman, 1987.

Breastfeeding and complementary feeding terms and definitions

ARTIFICIAL FEEDING: the infant is given breast-milk substitutes and not breastfeeding at all.

REPLACEMENT FEEDING: the process of feeding a child of an HIV-positive mother who is not receiving any breast milk with a diet that provides all the nutrients the child needs.

COMPLEMENTARY FEEDING: the process of giving an infant food in addition to breast milk or infant formula, when either becomes insufficient to satisfy the infant's nutritional requirements.

2.9.1 Assessing and classifying feeding problem in children

WHO's infant and young child feeding recommendations

Initiate breastfeeding within one hour of birth. Breastfeed exclusively for the first six months of age (180 days). Thereafter give nutritionally adequate and safe complementary foods to all children. Continue breastfeeding for up to two years of age or beyond. Adapted from the Global Strategy.

Infants exclusively breastfed for 4 or more months have half the mean number of acute otitis media episodes of those not breastfed at all. In low-income communities, the cost of cow's milk or



powdered milk, plus bottles, teats, and fuel for boiling water, can consume 25 to 50% of a family's income. Breast feeding contributes to natural birth spacing, providing 30% more protection against pregnancy than all the organized family planning programmes in the developing world. From: Duncan et al, 1993; UNICEF/WHO/UNESCO/UNFPAA, 1993; and Kleinman, 1987.

2.9.2. Infant and young child feeding is a key area to improve **child** survival and promote healthy growth and development. Under nutrition is estimated to be associated with 2.7 million child deaths annually or 45% of all child deaths. Infant and young child feeding is a key area to improve child survival and promote healthy growth and development. The first 2 years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic disease, and fosters better development overall.

Optimal breastfeeding is so critical that it could save the lives of over 820 000 children under the age of 5 years each year.

WHO and UNICEF recommend:

- early initiation of breastfeeding within 1 hour of birth;
- exclusive breastfeeding for the first 6 months of life; and
- introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond.

The three types of feeding are:

- (1) exclusively breastfeeding;
- (2) replacement feeding receiving no breast milk; or
- (3) mixed feeding with breast milk and replacement feeding.

Breastfeeding

Exclusive breastfeeding for 6 months has many benefits for the infant and mother. Chief among these is protection against gastrointestinal infections which is observed not only in developing but also industrialized countries. Early initiation of breastfeeding, within 1 hour of birth, protects the newborn from acquiring infections and reduces newborn mortality. The risk of mortality due to diarrhoea and other infections can increase in infants who are either partially breastfed or not breastfed at all.



Breast-milk is also an important source of energy and nutrients in children aged 6–23 months. It can provide half or more of a child’s energy needs between the ages of 6 and 12 months, and one third of energy needs between 12 and 24 months. Breast milk is also a critical source of energy and nutrients during illness, and reduces mortality among children who are malnourished.

Children and adolescents who were breastfed as babies are less likely to be overweight or obese. Additionally, they perform better on intelligence tests and have higher school attendance. Breastfeeding is associated with higher income in adult life. Improving child development and reducing health costs results in economic gains for individual families as well as at the national level.

Complementary feeding

Around the age of 6 months, an infant’s need for energy and nutrients starts to exceed what is provided by breast milk, and complementary foods are necessary to meet those needs. An infant of this age is also developmentally ready for other foods. If complementary foods are not introduced around the age of 6 months, or if they are given inappropriately, an infant’s growth may falter. Guiding principles for appropriate complementary feeding are:

- continue frequent, on-demand breastfeeding until 2 years of age or beyond;
- practise responsive feeding (for example, feed infants directly and assist older children. Feed slowly and patiently, encourage them to eat but do not force them, talk to the child and maintain eye contact);
- practise good hygiene and proper food handling;
- start at 6 months with small amounts of food and increase gradually as the child gets older;
- gradually increase food consistency and variety;
- increase the number of times that the child is fed: 2–3 meals per day for infants 6–8 months of age and 3–4 meals per day for infants 9–23 months of age, with 1–2 additional snacks as required;
- use fortified complementary foods or vitamin-mineral supplements as needed; and



- during illness, increase fluid intake including more breastfeeding, and offer soft, favourite foods.

Feeding in exceptionally difficult circumstances

Families and children in difficult circumstances require special attention and practical support. Wherever possible, mothers and babies should remain together and get the support they need to exercise the most appropriate feeding option available. Breastfeeding remains the preferred mode of infant feeding in almost all difficult situations, for instance:

- low-birth-weight or premature infants;
- mothers living with HIV in settings where mortality due to diarrhoea, pneumonia and malnutrition remain prevalent;
- adolescent mothers;
- infants and young children who are malnourished; and
- families suffering the consequences of complex emergencies.

HIV and infant feeding

Breastfeeding, and especially early and exclusive breastfeeding, is one of the most significant ways to improve infant survival rates. While HIV can pass from a mother to her child during pregnancy, labour or delivery, and also through breast-milk, the evidence on HIV and infant feeding shows that giving antiretroviral treatment (ART) to mothers living with HIV significantly reduces the risk of transmission through breastfeeding and also improves her health.

WHO now recommends that all people living with HIV, including pregnant women and lactating mothers living with HIV, take ART for life from when they first learn their infection status.

2.10 Immunization and related interventions

Immunization: A process by which a person becomes protected against a disease through **vaccination**. This term is often used interchangeably with **vaccination** or inoculation.

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Immunization, is the process by which an individual's immune system becomes fortified against an agent (known as the immunogen). ... [1] **Vaccines** against microorganisms that cause diseases can prepare the body's immune system, thus helping to fight or prevent an infection.

A **vaccine** is a substance containing a harmless form of the germs that cause a particular disease. It is given to people, usually by injection, to prevent them getting that disease. Anti-malarial **vaccines** are now undergoing trials. Fortunately there are two types of **vaccine** against the disease.

2.10.1 The expanded program of immunization

The **Expanded Programme on Immunization (EPI)** was initiated in **India** in 1978 with the objective to reduce morbidity and mortality from diphtheria, pertussis, tetanus, poliomyelitis and childhood tuberculosis by providing **immunization** services to all eligible children and pregnant women by 1990. Immunization is the **process** whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.

What are the targeted disease by EPI?

They are: **tuberculosis**;

- **diphtheria**;
- **poliomyelitis**;
- **measles**;
- **pertussis**;
- **tetanus**.

EPI has recently added **hepatitis B** and yellow fever to the list of target diseases.

Table 12.1 Immunization schedule and administration mode. (Source: *Immunization in Practice*, FMOH, 2009)

Age of vaccination	Type of vaccination	Dose	Mode of administration
At birth	BCG	0.1 ml	Upper right arm; intradermal
	OPV0	2 drops	Oral
6 weeks	DPT1-HepB1-Hib1	0.5 ml	Front outer side of the thigh muscle (intramuscular)
	OPV1	2 drops	Oral
10 weeks	DPT2-HepB2-Hib2	0.5 ml	Front outer side of the thigh muscle (intramuscular)
	OPV2	2 drops	Oral
14 weeks	DPT3-HepB3-Hib3	0.5 ml	Front outer side of the thigh muscle (intramuscular)
	OPV3	2 drops	Oral
9 months	Measles vaccine	0.5 ml	Upper right arm; subcutaneous

- BCG vaccine protects against tuberculosis (TB) and is given once only.
- OPV is the oral polio vaccine, given in four doses numbered 0 to 3.
- DPT is the diphtheria, pertussis, tetanus vaccine, combined in a single preparation with the Hepatitis B vaccine and the *Haemophilus influenzae* type B vaccine. Together, these five vaccines are known as the **pentavalent vaccine** ('penta' means five). Children get three doses.
- Measles vaccine is given only once.

2.10.2 Contra- indications to vaccine administration

What are the contraindications of immunization?

Only four conditions are considered to be permanent contraindications.

Anaphylaxis, a severe **allergy** to a vaccine component, is a contraindication to any vaccine containing that component, and a severe **allergy** following a dose of vaccine is a contraindication to subsequent doses of that vaccine.

Contraindications

Contraindications (conditions in a recipient that increases the risk for a serious adverse reaction) to vaccination are conditions under which vaccines should not be administered. Because the majority of contraindications are temporary, vaccinations often can be administered later when the condition leading to a contraindication no longer exists. A vaccine should not be administered when a



contraindication is present; for example, MMR vaccine should not be administered to severely immune compromised persons.

In general, the combination of corticosteroid therapy and other immune compromising treatments or conditions is a contraindication to vaccination.

Live attenuated vaccines (such as **MMR** , **MMRV [measles-mumps-rubella-varicella]**, **zoster**, **varicella** and **yellow fever**) may be unsafe in people receiving corticosteroid therapy.

Contraindications to vaccine administration

A contraindication is one or more conditions which makes administration of vaccines inadvisable due to some potential side effects. Common illnesses are not contraindications for immunization, so no sick child, including the malnourished child, should miss immunization, unless there is a clear contraindication.

There are only three situations which are considered to be contraindications to immunization: .

.Do not give BCG to a child known to have AIDS

. Do not give DPT2-HepB2-Hib2 or DPT3-HepB3-Hib3 to a child who has had convulsions or shock within three days of the last dose of the vaccine

. Do not give any doses of DPT-HepB-Hib to a child with recurrent convulsions or another active neurological disease of the central nervous system. In all other situations, here is a good rule to follow:

. There are no contraindications to immunization of a sick child if the child is well enough to go home . If you are referring a child, you do not need to give him or her a vaccine before referral. The staff at the referral site should make the decision about immunizing the child when the child is admitted. This will avoid delaying referral. As you read earlier, children with diarrhoea who are due for OPV should still receive this during their visit to the health post. However, the dose should not be counted and you should tell the mother to return with the child in four weeks for an additional dose of OPV. You should also advise the mother to be sure the other children in the family are immunized.



2.11 Ear problem and other common childhood infections

Introduction In this study session you will learn about ear problems and other common conditions affecting children. These conditions do not directly lead to death, but may cause serious complications that can result in permanent disability or death by involving other vital organs. You will learn how to identify a number of the most common ailments in a simple way and offer appropriate treatment and care. You will begin the study session by looking at ear problems and then go on to look at throat, eye and skin infections.

LEARNING METHODS:

- Lecture and discussion
- Role play, video show
- Group discussions

2.11.1 Ear problems

Ear infections rarely cause death but are major causes of morbidity. In developing countries, they are the leading cause of deafness and learning problems. Therefore it is important for you as a Health Extension Practitioner to know how to identify when a child has an ear problem, and that you are able to assess, classify and provide the appropriate treatment. You also need to know what follow-up care to give a child with an ear problem and how to advise the mother to give home treatment and care. A child with an ear problem may have an ear infection which can cause ear pain and fever. If an ear infection is not treated on time, the ear drum may perforate and the child feels less pain. Examples of complications of ear infections are meningitis, brain abscess, mastoiditis and deafness.

2.11.2 Assessing ear problems

The Assess and Classify chart will help you identify ear problems caused by ear infection. You should ask about ear problems for every sick child who is brought to your health post. When you assess a child you will be looking for the following signs:

. ear pain



- . ear discharge, and
- . if discharge is present, how long the child has had the discharge, and
- . tender swelling behind the ear, a sign of mastoiditis.

Box 13.1 is from the 'Assess' column in the Assess and Classify chart that tells you how to assess a child for ear problems.

Box 13.1 Assess for ear problems

ASK: Does the child have an ear problem?

IF YES, ASK:	LOOK AND FEEL:
<ul style="list-style-type: none"> • Is there ear pain? • Is there ear discharge? If yes, for how long? 	<ul style="list-style-type: none"> • Look for pus draining from the ear • Feel for tender swelling behind the ear

ASK: Does the child have an ear problem? If the mother answers no, you do not need to assess the child for ear problems. Your next question in this case would be whether the child has a throat infection. If the mother answers yes, ask the next question:

ASK: Does the child have ear pain? If the mother is not sure that the child has ear pain, ask if the child has been irritable and rubbing his ear. Whether the answer is yes or no you should ask the next question.

ASK: Is there ear discharge? If yes, for how long? When asking about ear discharge, use words the mother understands. For example, 'Is there any fluid that looks like pus coming out from the ears?' If the child has had ear discharge, ask the mother for how long.

LOOK for pus draining from the ear Look inside the child's ear to see if pus is draining from the ear. Pus is usually white, creamy or light green and may have an offensive smell.

- . An ear discharge that has been present for two weeks or more is defined as a chronic ear infection.
- . An ear discharge that has been present for less than two weeks is defined as an acute ear infection.

FEEL for tender swelling behind the ear Feel behind both ears. Compare them and decide if there is tender swelling of the mastoid bone. In infants, the swelling may be above the ear. Both tenderness and swelling must be present to classify mastoiditis, a deep infection in the mastoid bone.

13.1.2 Classify and treat ear problems

There are four classifications for ear problems:

- . Mastoiditis
- . Acute ear infection .
- . Chronic ear infection .

No ear infection. Table 13.2 sets out the classification table for ear problems from the Assess and Classify chart. You can see in the top (pink) row that classification of mastoiditis requires you to give the child one dose each of cotrimoxazole and paracetamol and then refer the child urgently to hospital. The chart also outlines what treatment is required for both acute and chronic ear infection.

Table 13.2 Classification and treatment of ear problems.

Table 13.2 Classification and treatment of ear problems.

<ul style="list-style-type: none"> • Tender swelling behind the ear 	MASTOIDITIS	<ul style="list-style-type: none"> • Give first dose of Cotrimoxazole • Give first dose of Paracetamol for pain • Refer URGENTLY to hospital
<ul style="list-style-type: none"> • Pus is seen draining from the ear and discharge is reported for less than 14 days • Ear pain 	ACUTE EAR INFECTION	<ul style="list-style-type: none"> • Give Cotrimoxazole for 5 days • Give Paracetamol for pain • Dry the ear by wicking [see below] • Follow-up in 5 days
<ul style="list-style-type: none"> • Pus is seen draining from the ear and discharge is reported for 14 days or more 	CHRONIC EAR INFECTION	<ul style="list-style-type: none"> • Dry the ear by wicking • Treat with topical quinolone ear drops for 2 weeks • Follow-up in 5 days
<ul style="list-style-type: none"> • No ear pain and • No pus seen draining from the ear 	NO EAR INFECTION	<ul style="list-style-type: none"> • No additional treatment



Mastoiditis

If a child has tender swelling behind the ear, classify the child as having mastoiditis.

Treatment

You must refer the child urgently to hospital. The child needs treatment with appropriate antibiotics. He may also need surgery. Before the child leaves for hospital, you should give him the first dose of an appropriate antibiotic. You should also treat his pain and high fever with paracetamol.

Acute ear infection

If you see pus draining from the ear and discharge has been present for less than two weeks, or if there is ear pain, classify the child's illness as acute ear infection.

Treatment

Give cotrimoxazole to the child and relieve the ear pain and high fever with paracetamol. Wicking should be done to dry the pus draining from the ear; wicking is which also describes how to counsel a mother about wicking. All Children with acute ear infection and ear discharge should be assessed for symptomatic HIV infection.

Chronic ear infection

If you see pus draining from the ear and discharge has been present for two weeks or more, classify the child's illness as chronic ear infection.

Treatment

Most bacteria that cause chronic ear infection are different from those which cause acute ear infections. The most important and effective treatment for chronic ear infection is to keep the ear dry by wicking. You should assess all children with chronic ear infection for symptomatic HIV infection. Topical quinolone ear drops (such as ciprofloxacin solution, 0.2%) should be instilled into the ear after meticulous ear wicking, three drops three times daily for 14 days. You should show the mother how to wick the ear and instill the ear drops and check whether she has understood the procedure.

No ear infection



If there is no ear pain and no pus is seen draining from the ear, the child's illness is classified as no ear infection. The child needs no treatment.

Follow-up care for ear problems

If you classified a child with either acute or chronic ear infection you need to tell the mother to return for a follow-up visit five days after her first visit. below outlines what follow-up care should be given to the child.



LG #36

LO #3. Refer cases for further investigation and management

What does Referral mean?

1. the process of directing or redirecting (as a medical case or a patient) to an appropriate specialist or agency for definitive treatment.
2. an individual that is referred

1. How to determine if the sick young infant needs urgent referral

Urgent referral All severe classifications on the Assess and Classify chart are in the pink row and include:

- . Severe pneumonia or very serious disease
- . Severe dehydration
- . Severe persistent diarrhoea
- . Very severe febrile disease
- . Severe complicated measles
- . Mastoiditis
- . Severe malnutrition
- . Severe anaemia.

In the treatment column for these severe classifications there is an instruction 'Refer URGENTLY to hospital'. This instruction means to refer the child to hospital immediately after giving any necessary pre-referral treatments. Do not give treatments that would unnecessarily delay referral.



. If the young infant up to two months old has possible serious bacterial infection, he or she needs urgent referral

. If the young infant has severe dehydration (and does not have possible serious bacterial infection), the infant needs rehydration with IV fluids according to PlanCand you should urgently refer the infant for IV therapy. The mother should be advised to give the young infant frequent sips of oral rehydration solution (ORS) on the way and she should continue breastfeeding.

There is one exception: for severe persistent diarrhoea, the instruction is simply to 'Refer to hospital'. This means that referral is needed, but not as urgently. Therefore, there is time to identify treatments and give all of the treatments the child requires before referral to hospital. Most children who have a general danger sign also have a severe classification. They will be referred for their severe classification (or possibly treated, if they have severe dehydration only). In rare instances, children may have a general danger sign or signs without a severe classification. These children should also be referred urgently. The Assess and Classify chart does not include all of the problems that children may have. You have to decide whether a child has any other severe problem that cannot be treated at this health post. For example, a child may have a severe problem that is not covered on the chart, such as severe abdominal pain. If you cannot treat a severe problem, you should always refer the child to hospital.

2. Identify urgent pre-referral treatment

When a young infant or a child needs urgent referral to hospital, you must quickly identify and begin the most urgent treatments for that child before he leaves for the hospital. Urgent treatments are in bold print on the classification tables. You will give just the first dose of the relevant drugs before referral.

The following urgent pre-referral treatments are for young infants aged from birth up to two months:

. Give the first dose of intramuscular or oral antibiotics

. Advise the mother how to keep the infant warm on the way to the hospital. If the mother is familiar with wrapping her infant next to her body, this is a good way to keep him or her warm on the way to the hospital.



Keeping a sick young infant warm is very important

- . Treat to prevent low blood sugar
- . Refer urgently to hospital with the mother giving the child frequent sips of ORS on the way. Advise the mother to continue breastfeeding.

The following urgent pre-referral treatments are for **sick children** aged two months up to five years:

- . Give an appropriate antibiotic
- . Give an appropriate antimalarial drug for severe malaria
- . Give vitamin A
- . Treat the child to prevent low blood sugar
- . Give paracetamol for high fever (38.5°C or above) or pain from mastoiditis
- . Apply tetracycline eye ointment (if clouding of the cornea or pus draining from the eye)
- . Provide ORS solution so that the mother can give the child frequent sips on the way to the hospital.

The first four treatments above are critical because they can prevent serious consequences such as progression of bacterial meningitis or cerebral malaria, corneal rupture due to lack of vitamin A, or brain damage from low blood sugar. The other treatments listed are also important in order to prevent worsening of the child's illness. Non-urgent treatments, for example wicking the ear, giving oral iron treatment, or teaching a mother how to treat a local infection, should not be done before referral. If immunizations are needed, do not give them before referral. Let hospital personnel determine when to give immunizations to avoid delaying referral. You should write the urgent pre-referral treatments identified for each classification on the reverse side of the case recording form. Box 16.1 below summarizes the main steps to take when you refer an infant or child to hospital.

Refer the infant or child

There are four steps you need to follow when referring an infant or child to hospital:

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1 Explain to the mother 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.

2 Calm the mother's fears and help her resolve any problems.

This might include reassuring her about the treatment her child will receive and helping her to find someone to look after any other children she has at home.

3 Write a referral note for the mother to take with her to the hospital. Tell her to give it to the health worker there.

4 Give the mother any supplies and instructions needed to care for her child on the way to the hospital, such as ORS and keeping her child warm.



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