

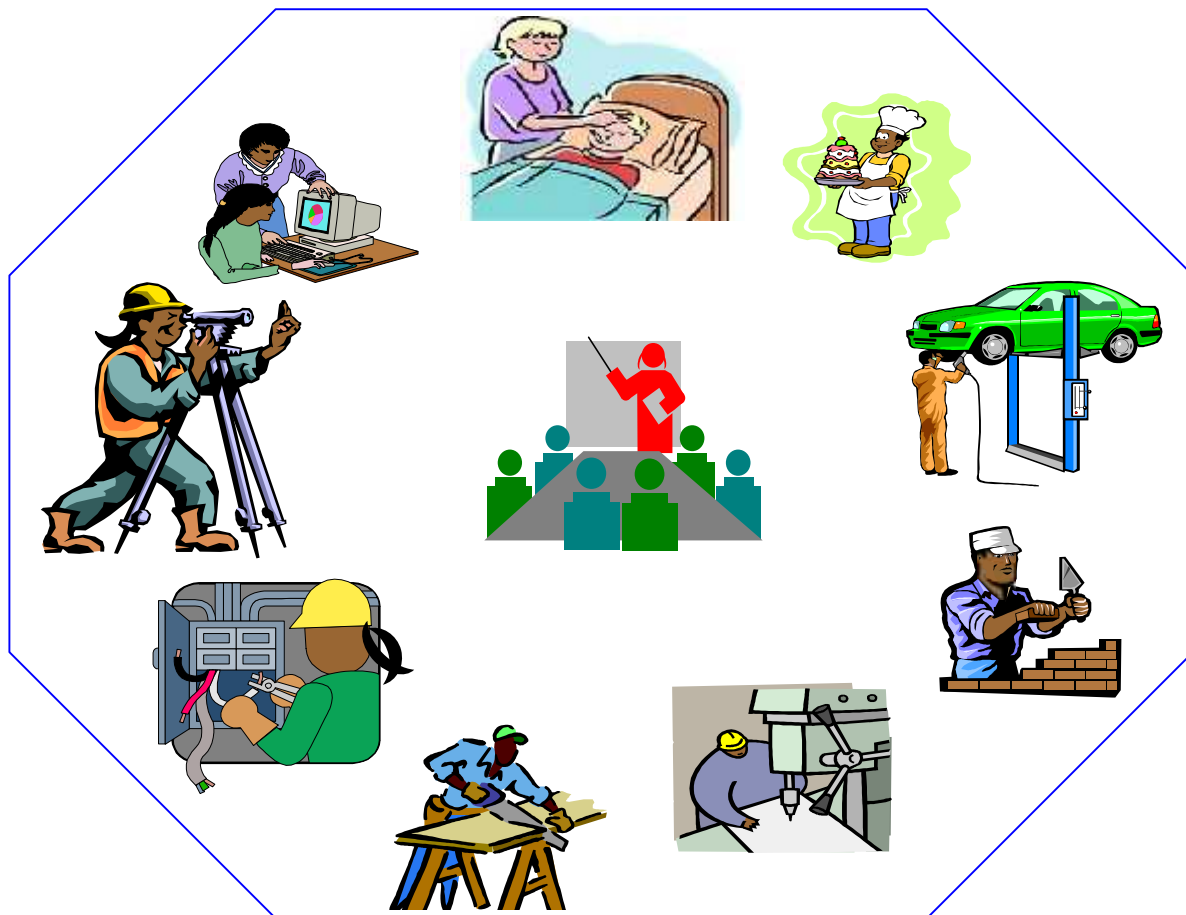


HEALTH EXTENSION SERVICE LEVEL-IV

Preventing, Controlling and Managing Common Communicable and Neglected

Tropical Disorders

Based on February, 2021 Version OS and February, 2021 Version Curriculum



Module Title: - Preventing, Controlling and Managing Common Communicable and Neglected Tropical Disorders

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LO1: Identify major communicable Diseases.

Instruction Sheet

Learning Guide #27

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

- Introduction to Common communicable diseases
- Understanding Major causes of communicable disease
- Identifying Methods of communicable disease transmission
- Natural history of Common Communicable Diseases
- Identifying, Diagnosis, Treatment, Prevention and Control of Common communicable diseases of:

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, **upon completion of this Learning Guide, you will be able to:**

- identify Common communicable diseases
- understand Major causes of communicable disease
- identify Methods of communicable disease transmission
- identify Major prevention and control mechanisms of communicable diseases

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, Sheet 4”and sheet 5.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3,Self-check 4”and sheet 5.

5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1, and Operation Sheet 2
6. Do the “LAP test” in page – 57 (if you are ready)

Information Sheet-1	Introduction to Common communicable diseases
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1.1. Definition of communicable diseases: communicable disease is an infectious disease that can be transmitted from one individual to another either directly by contact or indirectly by fumets and vectors. It can also be defined as illness caused by microorganism and transmitted from an infected person or animal to another person or animal. communicable or infectious disease is an illness caused by transmission of a specific agent or its toxic products from an infected person or animal to a susceptible host either directly or indirectly through an intermediate animal host or inanimate environment .Disease burden due to communicable disease is massive and these diseases cause heavy mortality, disability and economic loss to the country. Health workers have an important role to play in the control of these diseases by applying effective and efficient management, prevention and control measures. Health workers need to be equipped with capacity to target communicable diseases for eradication

1.1.1 The Burden of the Common Communicable Diseases: Communicable diseases are the main cause of health problems in Ethiopia. According to the Ethiopian Federal Ministry of Health, communicable diseases accounted for most of the top ten causes of illness and death in 2004 EFY.

Table 1.1 Top 10 leading causes of outpatient visits in most regions of Ethiopia, September 2008–August 2009. (From: Federal Ministry of Health (2010) Health and Health Related Indicators: 2008/9, Addis Ababa, Ethiopia)

Rank	Diagnosis	Percentage
1	Malaria (clinical diagnosis without laboratory confirmation)	8.3
2	Acute upper respiratory infections	8.1
3	Dyspepsia (indigestion)	5.9
4	Other or unspecified infectious and parasitic diseases	5.0
5	Pneumonia	4.8
6	Other or unspecified diseases of the respiratory system	4.0
7	Malaria (confirmed with species other than Plasmodium falciparum)	3.7
8	Diarrhoea with blood (dysentery)	3.7
9	Helminthiasis (caused by worms)	3.5
10	Diseases of the musculoskeletal system and connective tissue	3.0
Total % of all causes of outpatient visits		47.2

Table 1.2 Top 10 leading causes of inpatient deaths in most regions of Ethiopia, September 2008–August 2009.

Rank	Diagnosis	Percentage of all inpatient deaths
1	Pneumonia	12.4
2	Other or unspecified effects of external causes	7.1
3	Tuberculosis	7.0
4	Human immunodeficiency virus (HIV) disease	5.1
5	Anaemias	3.9
6	Other or unspecified diseases of the circulatory system (heart, blood vessels)	3.7
7	Hypertension (high blood pressure) and related diseases	3.5
8	Malaria (clinical diagnosis without laboratory confirmation)	3.1
9	Malaria (confirmed with Plasmodium falciparum)	2.5
10	Road traffic injuries	2.3
Total % of all causes of inpatient deaths		50.8

- Ethiopia Top 10 Causes of Death (global health - Ethiopia, 2018)
 1. Neonatal disorders
 2. Diarrheal diseases
 3. Lower respiratory infections
 4. Tuberculosis
 5. Ischemic heart disease
 6. Stroke
 7. HIV/AIDS
 8. Cirrhosis
 9. Meningitis
 10. Protein-energy malnutrition

Source: GBD Compare 2018, Cameroon

1.1.2 Definition of terms (epidemic, endemics, prevalence, incidence)

- ✓ Health- The most ambitious definition of health is that proposed by WHO in 1948: “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”
- ✓ Disease: The term disease broadly refers to any condition that impairs normal function.
- ✓ Epidemics - the occurrence of any health related condition in a given population in excess of the usual frequency in that population.
- ✓ Endemic - a disease that is usually present in a population or in an area at a more or less
- ✓ Sporadic - a disease that does not occur in that population, except at occasional and irregular intervals.
- ✓ Pandemic - an epidemic disease which occurs worldwide
- ✓ Infection - the entry and development or multiplication of an infectious agent in the body
- ✓ Contamination – presence of living infectious agent upon articles
- ✓ Infestation – presence of living infectious agent on the exterior surface of the body
- ✓ Infectious - caused by microbes and can be transmitted to other persons.
- ✓ Vector-An arthropod which transfers an infectious agent from a source of infection to a susceptible host
- ✓ Carrier- A person or animal that harbors a specific infectious agent in the absence of discernible clinical disease and serves as a potential source of infection

<i>Self-Check -1</i>	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. the occurrence of any health related condition in a given population in excess of the usual frequency in that population is(1)
A. Endemic C. Sporadic
B. Epidemics D. Pandemic

2. presence of living infectious agent on the exterior surface of the body(1)
A. Carrier C. Vector
B. Infectious D. Infestation

Note: Satisfactory rating - 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Information	Understanding Major causes of communicable disease
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2.1. causes of communicable disease; the organisms that cause communicable diseases are called infectious agents

- Helminthes: are worms made up of many cells; for example, Ascaris worm
- Protozoa: are micro-organisms made up of one cell; for example Plasmodium falciparum.
- Bacteria: are also micro-organisms made up of one cell, but they are much smaller than protozoa and have a different structure; for example Vibrio cholerae, which causes cholera.
- Viruses: are infectious agents that do not have the structure of a cell. They are more like tiny boxes or particles and are much smaller than bacteria; for example, HIV (the Human Immunodeficiency Virus), which can lead to AIDS. Though not as common as causes of communicable disease in humans, other types of infectious agents include fungi (e.g. ringworm is caused by a fungus infection), and mites (similar to insects), which cause scabies.

Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. the organisms that cause communicable diseases are called(2)
- A. infectious agents C. Viruses
 B. Helminthes D.ALL

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

3.1. Transmission can be conceptualized as a chain with 6 connected links: infectious agent, reservoir, portal of exit, mode of transmission, portal of entry, and host susceptibility.

3.1.1. Infectious Agents: agents capable of causing infection. Infectious agents include prions, viruses, bacteria, fungi, protozoa. Each acts differently depending on intrinsic properties and how they interact with their human host. Intrinsic properties include size, shape, chemical composition, growth requirements, and viability.

3.1.2. Reservoirs: This refers to any environment, in which infective agents can live, parasitize and breed. It includes infected human (e.g. patients, carriers and people with latent infections), livestock, insects and soil. The source of infection will normally form the basis for the infective agents to infect humans

Table: 3.1 Common reservoirs and sources of infection

<i>Diseases</i>	<i>Reservoir</i>	<i>Source</i>
Tuberculosis	man	sputum
HIV / AIDS	man	body fluids and secretions
Malaria	man and mosquito	Infected blood
Rabies	Dog and other animals	Saliva
Measles	Man	Droplets
Cholera	Man	Unsafe water and food
Typhoid	man	unsafe water and food
Tetanus	soil	soil,

3.1.3. Portals Entry: Successful transmission of the infectious agent requires it to enter the host through a specific part of the body before it can cause disease.

- Mechanism of Entry of infectious organism in Host.
- ✓ Infectious organism can enter in the body of host through intact skin and mucous membrane e.g. hookworm, larvae can penetrate intact

skin, Rabies virus can enter through wound and intact mucus membrane.

- ✓ Through oral cavity and gastro intestinal tract, contaminated water & food.
- ✓ Through respiratory system e.g. mycobacterium tuberculosis
- ✓ By insect bite, the disease producing organism can be injected to the blood stream
- ✓ Parenteral transmission – through use of unsafe needles and syringes and also through• unsafe blood transfusion

3.1.4. Portals of Exit: Common portals of exit include respiratory secretions, vaginal secretions, semen, saliva, lesion exudates, blood, and feces.

3.1.5. Modes of Transmission Modes of transmission may be direct or indirect.

- ✓ Direct transmission: implies the immediate transfer of an infectious agent
- ✓ from an infected host or reservoir to an appropriate portal of entry in the human host through physical contact such as touching, biting, kissing, or sexual contact, or through droplet spray and transplacental transmission
- ✓ Indirect transmission: is the spread of infection through a vehicle of transmission outside the host. These may be Vector-borne transmission(houseflies, mosquitoes, lice and ticks), Vehicle-borne transmission(non-living substance or object that can be contaminated by an infectious agent)

3.1.6. Host Susceptibility: Individuals who are likely to develop a communicable disease after exposure to the infectious agents are called susceptible hosts. Not all humans are equally susceptible for contracting an infection. Factors that increase the susceptibility of a host to the development of a communicable disease are called risk factors (Biological and personal characteristics (e.g., age), General health status, Personal behaviors(e.g.

poor personal hygiene, Alcohol), Immune system and immunization status.(e.g. HIV/AIDS, malnutrition...)

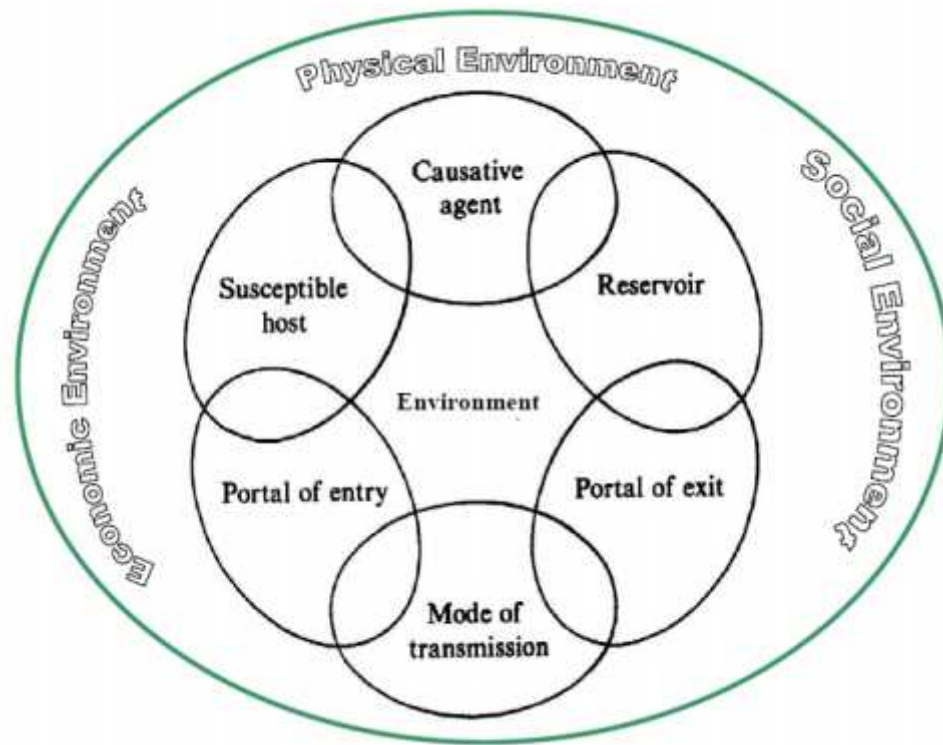


Figure 3.1. Factors involved in the chain of communicable disease Transmission.

4.1. Natural History of Disease: Natural course that a disease would take when it has not been affected by any treatment or any other intervention. The mere presence of agent, host and environment is not enough to cause the disease. As long as the agent, host and environment are in a state of equilibrium disease will not be initiated; the process of human disease would be initiated only if there is an appropriate interaction and a loss in equilibrium, between the agent, host and environment.

4.1.1. The natural history of disease can be divided into two stages

- Pre-Pathogenesis Phase / Stage of susceptibility: In this stage, the disease has not developed but the ground has been laid by the presence of factors that favor its occurrence. For example,
 - ✓ Alcohol consumption for Cirrhosis of liver
 - ✓ High Cholesterol, obesity, Type of personality: Heart Diseases
 - ✓ Smoking, Hypertension, High Cholesterol : Stroke
 - ✓ Radiation, Smoking, Immune suppression: Cance
- Pathogenesis phase: The pathogenesis phase is divided into
 - ✓ Stage of subclinical disease / stage of pre symptomatic disease: At this stage the infectious agent has entered the host's body and has begun multiplying. Even At this stage there are no clinical manifestations of the disease, a term referring to the typical symptoms and signs of that illness. Symptoms are the complaints the patient can tell you about (e.g. headache, vomiting, dizziness). Signs are the features that would only be detected by a trained health worker (e.g. high temperature, fast pulse rate, enlargement of organs in the abdomen).
 - ✓ Stage of clinical disease (Infectious disease): At this stage Signs and Symptoms of the disease are manifested. The severity of the disease is variable depending on the interaction of certain factors:-Nutritional status, Immunity of

individuals & other diseases For example, a person infected with Plasmodium falciparum, who has fever, vomiting and headache, is in the stage of infectious disease in this case, malaria. The time interval between the onset (start) of infection and the first appearance of clinical manifestations of a disease is called the incubation period. For malaria caused by Plasmodium falciparum the incubation period ranges from 7 to 14 days.

- The clinical spectrum also depends on
 - ✓ Infectivity: Refers to the proportion of exposed persons who become infected.
 - ✓ Pathogen city: Refers to the proportion of infected persons who develop clinical disease.
 - ✓ Virulence: refers to the proportion of persons with clinical disease who become severely ill or die. Infected hosts who have clinical manifestations of the disease are called active cases. Individuals who are infected, but who do not have clinical manifestations, are called carriers. Carriers and active cases can both transmit the infection to others.
- Communicable diseases can be classified as acute or chronic:
 - ✓ Acute diseases are: characterized by rapid onset and short duration of illness. For instance, diarrheal that starts suddenly and lasts less than 14 days is an acute diarrheal disease.
 - ✓ Chronic diseases are characterized by prolonged duration of illness; for example, a chronic diarrheal disease lasts more than 14 day.
- Stage of Disability (Stage of outcome): At this stage the disease may result in recovery, disability or death of the patient. Some diseases resolve completely but some may leave residual effect of short term or

long term duration, leaving a person disabled to lesser or greater extent.

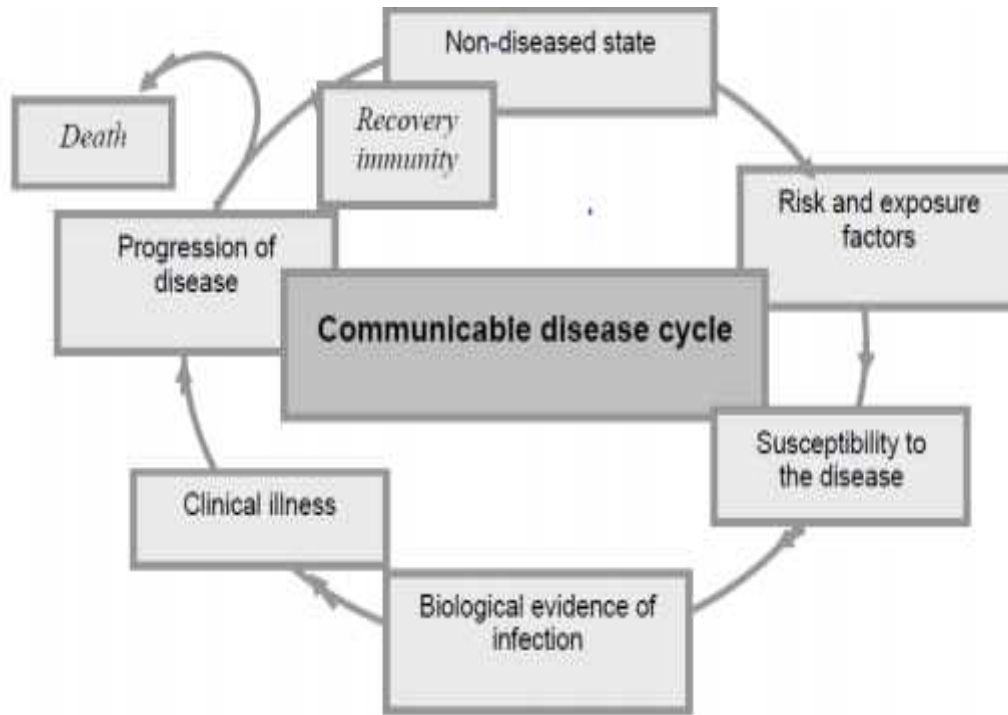


Figure 4.1: the natural history of disease/condition

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. The time interval between the onset (start) of infection and the first appearance of clinical manifestations of a disease is called(1)

A. Symptoms	C. the incubation period.
B. Radiation	D. all

2. the disease may result in recovery, disability or death of the patient is (1)

A. Stage of Disability	B. Pathogenesis phase
C. Pre-Pathogenesis Phase	D. Stage of susceptibility

Note: Satisfactory rating – 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

5.1. Introduction

Prevention of communicable diseases is an important aspect of community Health. Preventive actions can be taken at any stage of the spectrum of Health. Most preventive actions are focused on those who are not affected. Preventive actions are aimed at curtailing and controlling diseases with the sole purpose of minimizing morbidity and mortality in the population. This will help you in identifying appropriate measures for the prevention and control of communicable diseases

5.1.1. Malaria:

- Malaria is a vector-borne disease that can be transmitted by a vector which is a mosquito that carries the malaria parasite from person to person. Malaria is the red blood cell infection caused by parasite protozoa called Plasmodium. Malaria can be transmitted by direct transmission of mosquito bite and indirect transmission like, blood transfusions and placental transmission. You will learn how mosquito transmit malaria and a clear understanding of the life cycle of the malaria parasite and of the mosquito, the vector which transmits it from person to person, will help you carry out your responsibility of protecting people in your community from getting malaria and of treating people with malaria

- Malaria parasites: Malaria is caused by Plasmodium parasites. Plasmodium parasites infect people and attack the red blood cells, which often leads to severe illness and death. The parasites are spread to people through the bites of infected Anopheles mosquitoes, which are the malaria vectors and which bite mainly between dusk and dawn. There are four types of human malaria, each due to one of the parasites with the following specific names:

- ✓ *P. falciparum*, which is found worldwide in tropical and subtropical areas. It is estimated that every year approximately 1 million people are killed by *P. falciparum*, especially in Africa where this species predominates. *P. falciparum* can cause severe malaria because it multiplies rapidly in the blood, and can thus cause severe blood loss (anemia). In addition, the infected parasites can clog small blood vessels. 2.
 - ✓ *P. vivax*, which is found mostly in Asia, Latin America, and in some parts of Africa. Because of the population densities especially in Asia it is probably the most prevalent human malaria parasite. *P. vivax* (as well as *P. ovale*) has dormant liver stages ("hypnozoites") that can activate and invade the blood ("relapse") several months or years after the infecting mosquito bite.
 - ✓ *P. ovale* is found mostly in Africa (especially West Africa) and the islands of the western Pacific.
 - ✓ *P. malariae*, found worldwide, is the only human malaria parasite species that has a quartan cycle (three-day cycle)
- Malaria can be transmitted: by direct transmission of mosquito bite and indirect transmission like, blood transfusions and placental transmission and. Mosquitoes breed in sunlight, small stagnant water collections in the residential areas. It is mainly transmitted from infected person to the healthy person by the bite of female anopheles mosquito. The bite takes place during the dark and cool hours of the day. Malaria parasites spread by successively infecting two types of hosts: female Anopheles mosquitoes and humans. In humans, the parasites grow and multiply first in the liver cells and then in the red cells of the blood. In the blood, successive broods of parasites grow inside the red cells and destroy them, releasing daughter parasites ("merozoites") that continue the cycle by invading other red cells.
 - Sign and symptoms of malaria: Symptoms of malaria usually start to appear 7 to 21 days after the bite of an infected mosquito. However, the normal incubation period is different for different species of Plasmodium. all the clinical symptoms associated with malaria are caused by the asexual erythrocytic or blood stage parasites. When the parasite develops in

the erythrocyte, numerous known and unknown waste substances such as hemozoin pigment and other toxic factors accumulate in the infected red blood cell. Plasmodium falciparum-infected erythrocytes, particularly those with mature trophozoites, adhere to the vascular endothelium of venular blood vessel walls and do not freely circulate in the blood. When this sequestration of infected erythrocytes occurs in the vessels of the brain it is believed to be a factor in causing the severe disease syndrome known as cerebral malaria, which is associated with high mortality. Classically (but infrequently observed) the attacks occur every second day with the "tertian" parasites (P. falciparum, P. vivax, and P. ovale) and every third day with the "quartan" parasite (P. malariae). More commonly, the patient presents with a combination of the following symptoms: Fever, Chills, Sweats, nausea and vomiting, general malaise and head ache. Fever of 2 or 3 days and one of the following can be a danger sign and symptoms for malaria un able to drink, Convulsion, Vomiting repeatedly, Fast breathing or difficult to breath, Yellowish discoloration of eye, mouth or palm. The most important thing in the clinical diagnosis of malaria is for you to be alert and to suspect malaria in all patients with fever, whether your catchment area is located in a malarious area or not. Because the distribution of malaria in Ethiopia is not uniform, it is also very important for you to find out the geographical and travel history of a patient who shows signs and symptoms of malaria, most importantly fever. In non-malarious areas, you should suspect malaria in a patient who has high fever, or has had fever in the last 48 hours, if the person has travelled to a malarious area or country in the previous two weeks. In malarious areas, fever, or a history of fever in the last 48 hours, should be enough for you to suspect malaria in a patient. You should pay particular attention to children under the age of five years and pregnant mothers, as these groups are at a higher risk than others.

- Parasitological or parasite-based diagnoses of malaria: WHO recommends prompt malaria diagnosis either by microscopy or malaria rapid diagnostic test (RDT) in all patients with suspected malaria before treatment is administered. The national malaria diagnosis policy in Ethiopia is that Health Extension Workers and Practitioners must test anyone suspected of having malaria by using the RDT for malaria. RDTs are now available in all health posts in areas where malaria is a risk. The Ethiopian national guidelines state that malaria treatment at health post level, or referral from the health post to the health centre, should be based on RDT test results. By using the RDT you will be able to test for malaria

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parasites in a patient’s blood, and in this way to provide a more accurate diagnosis than a clinical or presumptive diagnosis. RDTs give results in about 15–20 minutes. RDTs do not require any expensive or complicated equipment and can be used by you in the patient’s home. RDTs cannot test how many malaria parasites there are in the blood they can only test whether parasites are present or absent. In fact, RDTs do not detect actual parasites; they detect parasite antigens. Some parasite antigens can remain in the blood for at least two weeks after the parasites have been killed by drugs. An RDT used within two weeks of drug treatment may still detect parasite antigens and so give a positive result for malaria infection, even if the person no longer has parasites, because the parasites have been killed by the drugs. This is why this positive result cannot be trusted. RDTs can be damaged by heat and humidity, so the RDT should not be removed from its sealed package 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 and can give an invalid (false) result. You should discard this package and use another, unopened, package.

- Treatments of malaria: At this level, Coartem (Artemether-lumefantrine) administered 2 times a day for 3 days) is the first-line drug for the treatment of all clinical malaria cases and for RDT confirmed falciparum malaria cases. For all RDT negative case with clear clinical signs and symptoms of malaria, it could be convincing to consider vivax malaria for which treatment with chloroquine at a dosage of 25mg/kg administered over three days should be started promptly and the patient referred to the next higher level of health facility. For patients with RDT negative results other causes of fever should be looked for and treated and/or referred accordingly. In addition, advice/educate the patient that:
 - ✓ Early treatment is important to prevent severe illness and death due to malaria;
 - ✓ To take/give enough food and fluid (especially, fatty meal, to enhance drug absorption and to avoid risk of hypoglycemia).
 - ✓ To return to the health post if fever persists or he/she is still sick after 72 hours after or anytime before 72 hours if conditions worsen.

Table 5.1. Coartem treatment doses and schedules by body weight and age.

Weight (kg)	Age	Day1		Day2		Day3	
		Morning	Evening	Morning	Evening	Morning	Evening
5-14	4 months-2 years	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet
15-24	3-7 years	2tablets	2tablets	2tablets	2tablets	2tablets	2tablets
25-34	8-10 years	3tablets	3tablets	3tablets	3tablets	3tablets	3tablets
35+	10 + years	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets

Table 5.2 Chloroquine treatment doses (tablets or syrup) and schedules by body weight and age

Weight (kg)	Age	Day1	Day2	Day 3
5-6	less than 4 months	½ tablet OR 5 ml syrup	¼ tablet OR 5 ml syrup	¼ tablet OR 2.5 ml syrup
7-10	4-11 months	½ tablet OR 7.5 ml syrup	½ tablet OR 7.5 ml syrup	½ tablet OR 5 ml syrup
11-14	1-2 years	1 tablet OR 12.5 ml syrup	1 tablet OR 12.5 ml syrup	½ tablet OR 7.5 ml syrup
15-18	3-4 years	1 tablet OR 15 ml syrup	1 tablet OR 15 ml syrup	1 tablet OR 15 ml syrup
19-24	5-7 years	1½ tablets OR 20 ml syrup	1½ tablets OR 20 ml syrup	1 tablet OR 15 ml syrup
25-35	8-11 years	2 tablets	2tablets	1 tablet
36-50	12-14 years	3 tablets	3tablets	2tablets
51+	15 + years	4tablets	4tablets	2tablets

- Supportive treatment: A patient with uncomplicated malaria may require additional treatment for other conditions that may manifest, such as dehydration, high fever.
 - ✓ To reduce high fever (rectal temperature of above 39 o C in children), give paracetamol and advice patient to receive tepid sponging and fanning.
 - ✓ For patients with moderate dehydration, give oral re- hydration salt (ORS) and advise to take increased amount of clean water or other fluids. In the case.
- Referral criteria :A patient with one or more of the following conditions should be referred immediately to the nearest health center or hospital:
 - ✓ Altered consciousness (e.g. confusion, sleepy, drowsy, comma)
 - ✓ Not able to drink or feed

- ✓ Severe dehydration,
- ✓ Persistent fever,
- ✓ Frequent vomiting
- ✓ Convulsion or recent history of convulsion
- ✓ Unable to sit or stand up
- ✓ Pallor (Anemia)
- ✓ No urine output in the last 24 hours
- ✓ Bleeding
- ✓ Jaundice (yellowish coloration)
- ✓ Difficult breathing
- ✓ Other conditions that cannot be managed at this level

- Prevention and control of malaria

- ✓ Environmental management: Destruction of breeding sites and Filling of mosquito breeding sites with soil, stones, rubble, ash or rubbish is the most permanent control measure available. It is most suitable for reducing breeding sites that do not require much filling material. The filling material should be obtained without creating new breeding sites. Waste materials can be used for most of the filling.
- Drainage: The drainage of water can be accomplished by constructing open waterways and dykes with tidal gates, subsoil drainage and pumping. Leakages, obstructions and small pools or puddles of residual water in drainage ditches often afford suitable breeding sites for mosquitoes.
- Flushing : (increasing water flow in streams) is employed in small streams where there is a continuous and abundant supply of water flowing slowly enough to permit mosquitoes to breed in quiet places along the margins.
- ✓ Mosquito vector control: Indoor residual spraying (IRS)



Figure 5.1. Indoor residual spraying (IRS)

- An Insecticide treated net (ITN): is a mosquito net impregnated with insecticide that repels, disables or kills mosquitoes coming into contact with it. ITNs are one of the most effective methods of preventing malaria in malaria-risk areas. The insecticides used for treating bed nets kill mosquitoes, as well as other insects, and they also repel mosquitoes, reducing the number entering the house to feed on the people inside. In addition, if high community coverage of ITNs is achieved, the numbers of mosquitoes, as well as their life span, will be reduced. When this happens, all members of the community are protected, regardless of whether or not they are using a bed net. To achieve such effects, high community coverage is required. The use of ITNs has repeatedly been shown to reduce the incidence. Killing mosquito larvae as they develop in water, and using IRS to kill adult mosquitoes, you will learn about another malaria prevention strategy directed against adult mosquitoes.

5.1.2. Introduction to typhoid fever:

- Bacterial faeco-oral disease caused by *Salmonella typhi* bacteria, which is classified as a febrile illness (not a diarrheal disease)
- Typhoid fever is a major health problem in poor communities and is endemic
- You can suspect a case of typhoid fever based on your clinical diagnosis, but because the symptoms of typhoid fever are similar to that of malaria, you should first use the malaria rapid test (RDT) if you are in an area where malaria is endemic (Figure 33.8). Even after ruling out malaria, you can't be sure of the diagnosis of typhoid fever, because meningitis and relapsing fever can also present with similar symptoms and signs. Therefore, if you

suspect typhoid fever, refer the patient to the nearest higher level health facility for laboratory diagnosis and specialist treatment.

- As with other faeco-oral diseases, your role in the prevention and control of typhoid fever is giving health education to your community on measures that aim to interrupt faeco-oral transmission.
- Typhoid fever is transmitted mainly indirectly by contaminated food or water.
- Diagnosis of typhoid fever
 - ✓ Sign and symptom
 - ✓ Laboratory examination(widal test)
 - ✓ Contact history
- Prevention of typhoid fever
 - ✓ Appropriate use of latrine
 - ✓ Prepare Hand washing
 - ✓ Early treatment of cases
 - ✓ Cooking foods thoroughly
 - ✓ Health education
 - ✓ If food is re-heated, ensure that it is heated adequately
 - ✓ Store cooked food above raw food
- Typhoid treatment
 - ✓ Symptom treatment
 - ✓ Antibiotics(ciprofloxaciline, chloramphinicol ...)

5.1.3. Introduction cholera

- ✓ Cholera is an acute watery disease characterized by “rice” watery diarrhea
 - ✓ It can affect people in all age-groups.
 - ✓ Cholera is caused by the bacteria named *Vibrio cholerae*.
 - ✓ Cholera is both water and food borne disease
 - ✓ It causes severe dehydration and causes death
 - ✓ Its reservoir is man, and source is unsafe water and food.
- Epidemics

- ✓ Cholera can spread very easily from person to person, because even a few bacteria are enough to cause the disease if the person is already vulnerable, e.g. due to malnutrition or other infections.
 - ✓ There have been epidemics of cholera in Ethiopia; in 1970, several thousand deaths occurred in the eastern, central and southern regions of the country. Conditions leading to epidemics include the consumption of unsafe water, poor hygiene, poor sanitation and crowded living conditions.
- Symptoms and signs of cholera
 - ✓ Knowledge of the typical symptoms and signs of cholera will help you to suspect cases and undertake further epidemic investigation measures.
 - ✓ Cholera usually manifests after an incubation period of one to five days (i.e. the time between the bacteria entering the person's body and the first symptoms appearing), but it can begin within a few hours after the infection. In about 80% of cases, the disease presents with relatively mild symptoms, but about 20% develop acute watery diarrhea with severe sudden onset.
 - ✓ The stools are painless and voluminous, with the appearance of water in which rice has been boiled (rice-water stools are a characteristic sign of cholera).
 - ✓ The patient also experiences nausea, vomiting, fever and rapid progression to experiencing extreme weakness and shock. In such cases, death may occur within hours after the start of the illness. Shock in cholera results from rapid dehydration and loss of essential salts in the voluminous diarrhea and vomit.
 - ✓ Shock in cholera results from rapid dehydration and loss of essential salts in the voluminous diarrhoea and vomit.
 - ✓ The typical signs of shock are systolic blood pressure dropping below 90 mmHg and/or diastolic blood pressure dropping below 60 mmHg, with a rapid pulse rate above 100 beats per minute. A person in shock will often appear confused and may lose consciousness. You must act quickly to save their life.
 - ✓ In addition to the rapid onset and progression of the illness, the presence the following symptoms and signs would support the diagnosis of cholera:
 - ❖ Painless diarrhea and rice-water appearance of his stool
 - ❖ Fever
 - ❖ Extreme weakness

- ❖ Shock (low blood pressure and rapid pulse rate)
- ❖ Similar cases in the household or nearby.

- Diagnosis of cholera

- ✓ Sign and symptom
- ✓ Laboratory examination of stool
- ✓ Contact history



Figure 5.2. Profuse vomiting and rice-water stools

- Transmission of cholera

- ✓ Cholera can be spread through contaminated water and food specially in refuges, camps
- ✓ Transmission is high where there is no through hand washing before food preparation and eating, latrine utilization is poor



Figure 5.3. Cholera can spread quickly and cause epidemics in refugee camps, like this one in the Democratic Republic of the Congo.(Photo: Ahu2, Wikimedia Commons)

- Cholera treatment Includes
 - ✓ Rehydration:-Oral /or IV fluid replacing
 - ✓ Antibiotics (doxycycline)

- Cholera prevention
 - ✓ Appropriate use of latrine
 - ✓ Prepare Hand washing
 - ✓ Early treatment of cases
 - ✓ Cooking foods thoroughly
 - ✓ Health education
 - ✓ If food is re-heated, ensure that it is heated adequately
 - ✓ Store cooked food above raw food

- Equipments and materials for cholera case treatment
 - ✓ PPE(Gloves, apron, boots, goggle , mask)
 - ✓ Iv fluid, ORS, iv set, cannula
 - ✓ Specimen tube, pen,
 - ✓ Antiseptics (bleach)



Figure5.4. Personal protective equipments (PPE)

5.1.4. Trachoma:

- Is an infectious eye disease that can eventually cause blindness if left untreated. In the initial stages of trachoma, the bacteria *Chlamydia trachomatis* primarily infect the conjunctiva. This is a thin clear membrane that covers the inner surface of the eyelid and the white part of the eyeball. First it becomes itchy and inflamed (red, swollen and painful); later it becomes scarred and the eyelashes turn inwards. The cornea is the thick transparent tissue over the front part of the eye, covering the white, black and colored areas. The damage to the cornea is not due to the bacteria, but by persistent scratching from the eyelashes, which have turned inwards due to scarring in the conjunctiva.
- Modes of transmission of trachoma : The bacteria that cause trachoma are transmitted mainly by contact with the discharge (pus) coming from an infected person's eyes. Note that direct transmission from one person's eyes to the eyes of another person is unusual, but direct mother-to-newborn transmission can occur during birth if the mother has *Chlamydia* bacteria in her birth canal. These bacteria can live in the genitals of males and females, causing a sexually transmitted infection, which can get into the eyes of the baby as it is born. This is why tetracycline eye ointment (1%) is applied to the eyes of all babies as part of routine newborn care. However, the most common routes by which *Chlamydia* bacteria get into the eyes and cause trachoma are through:

- ✓ Flies landing on the face of an infected person and then carrying the infected discharge to another person's face.
 - ✓ An infected person touching his/her eyes and then touching another person on the face or directly on their eyes.
 - ✓ Clothing used to wipe infected eyes and then contaminating the eyes of another person, for example if it is used as a towel.
- The clinical manifestations: The clinical manifestations of trachoma have been classified by the World Health Organization (WHO) into five grades indicating how far the disease has progressed. The five grades of trachoma progression:
 - ✓ Trachomatous follicles (TF) - The first and earliest trachoma grade is characterized by the presence of five or more trachomatous follicles in the conjunctiva inside the upper eyelid. They are round, slightly raised, whitish areas of at least 0.5 mm in size. Trachomatous follicles should not be confused with trachoma scars, which are flat, or the normal eyelash follicles on the edge of the eyelids. Other signs that you may notice are redness and swelling of the conjunctiva as a result of inflammation caused by the bacterial infection.
 - ✓ Trachomatous inflammation (TI)- The second grade is when profound inflammation occurs in more than half of the upper conjunctiva, which is red, thick and swollen and has many trachomatous follicles. In severe cases, the blood vessels of the eyelids may not be visible due to the swelling of the conjunctiva.
 - ✓ Trachomatous scarring (TS) - Time, the inflammation resolves and the follicles are replaced by scars on the conjunctiva, which appear as small glistening lines or stars, and later may become flat, thick, white bands.
 - ✓ Trachomatous trichiasis (TT) - The scars gradually cause the eyelashes to turn inwards, and at least one eyelash rubs on the cornea. This sign is called trichiasis. Here, many of the eyelashes are turned inwards and rub the cornea when the person blinks. This is painful and distressing for the person and it gradually damages the cornea.
 - ✓ Corneal opacity (CO) - A healthy cornea appears black where it covers the lens at the front of the eye. In the fifth and most severe grade of trachoma,

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the cornea becomes white and opaque (not transparent). This is known as corneal opacity. Vision is lost and the patient is rendered blind.







	Stage	Description
	N: Normal Tarsal Conjunctiva	For examination, the upper eyelid is turned over (everted). Notice the large deep-lying blood vessels that mainly run vertically.
	TF: Trachomatous inflammation – Follicular	Presence of 5 or more follicles in the upper tarsal conjunctiva, each at least 0.5 mm in size.
	TI: Trachomatous inflammation – Intense	Pronounced inflammatory thickening of the upper tarsal conjunctiva, which obscures more than one half of the normal tarsal vessels.
	TS: Trachomatous Scarring	The presence of easily visible white lines, bands, or sheets in the tarsal conjunctiva. Scarring may obscure the tarsal vessels.
	TT: Trachomatous Trichiasis	At least 1 eyelash that rubs the globe or evidence of recently removed in-turned lash (<i>epilation</i>).
	CO: Corneal Opacity	The presence of an easily visible corneal opacity that obscures at least part of the pupillary margin

Figure 5.5. The five grades of trachoma progression

- Treatment :antibiotic treatment Topical treatment, 1% Tetracycline eye ointment: This is mostly accepted because it is cheaper and there is no risk of systemic side effects.
- Health education to prevent trachoma
 - ✓ Face washing: Educate all families, particularly mothers of children by going house to house to teach them the importance of regular washing of face and hands, ideally using soap. Go to schools to teach children there in a large group that washing regularly prevents the

transmission of trachoma from person to person. Everyone should learn the habit of washing their faces and hands with soap and water in the early morning before they touch their eyes, before and after eating or preparing food, and after using the latrine.

- ✓ Environmental sanitation: Educate every family to dispose of their household rubbish in a pit dug a way from their home. Garbage and other dirty materials can be buried using spades or other locally made tools. The waste materials should be covered with soil or burnt inside the pit. Educate adults and children to keep their surrounding environment clean and free from rubbish and animal dung, to avoid encouraging the breeding of flies.
- ✓ Antibiotic treatment of active cases of trachoma by tetracycline 1% ointment

5.1.5. Scabies :

- Scabies is not a serious condition, but it is very common in poor communities and it may severely impair the quality of life of affected children. Scabies is a parasite infestation of the skin caused by microscopic mites, *Sarcoptes scabiei*. These tiny animals are spread principally by direct skin-to-skin contact (e.g. during close physical contact between children and parents, or during sexual intercourse), and to a lesser extent through contact with infested clothes and bedding



Figure 5.6. A man with scabies on his back and shoulder areas

Male and female mites mate on the surface of the person's skin. The female burrows into the skin, depositing eggs in the tunnel behind her. After the eggs are hatched, larvae migrate to the skin surface and eventually change into the adult form. An adult mite can live up to about a month on a person, but they survive only two to three days once away from the human body. Individuals who become infested with scabies mites for the first time usually develop symptoms after four to six weeks, but they can still spread the mites during this time. If someone is cured of scabies, but acquires the mites again later, the symptoms appear much more quickly, within days.

- Clinical manifestations of scabies : The first clinical manifestation of scabies is severe itching of the skin, particularly at night. The characteristic raised red pimples on the skin that develop later are due to an allergic response to the mites. You may also be able to see the threadlike burrows in the skin made by egg-laying female mites. In infants, the palms, soles, face and scalp are most often affected. 76 In older children and adults the rash is most often found in the spaces between fingers and toes, wrist, armpits, ankles, navel, 'belt line', groin, buttocks, genitals in men and breasts in women.
- Treatment and prevention of scabies: A chemical called benzyl benzoate lotion (BBL, 25 % solution) is used for the treatment of scabies. In adults, the lotion should be applied to the whole body including the neck, face and ears – but taking care not to get it into the eyes, nose or mouth. Use a cotton swab to squeeze the lotion under the ends of the fingernails and toenails, where mites can hide. Tell the person not to wash! Repeat the treatment the following day and advise the patient not to wash for another 24 hours. Children should also be treated with BBL, but the advice is to apply the lotion every day for three days; on each day leave the lotion on the child's body for 13 hours, and then wash it off. Other people who have been in close contact with a child or adult with scabies should also be treated with BBL to avoid re-infection, and all clothes and bedding should be thoroughly washed with hot water and dried in sunlight. Education on prevention of scabies should focus on explaining the transmission of the itchy mites and good personal hygiene, such as bathing and washing clothes

frequently. The main control measures are early diagnosis and treatment of patients and contacts.

5.1.6. Tuberculosis:

- is one of the leading causes of morbidity and mortality and a leading cause of hospital admission. Tuberculosis is caused by bacteria called *Mycobacterium tuberculosis*. It usually attacks the lungs, but it can attack any part of the body. People of all ages can contract tuberculosis. The risk of developing TB is highest in children under 3 years of age.
- Tuberculosis transmission: is spread through the air. When a person with the disease coughs or sneezes the germs enter the air. A person inhaling air that contains TB germs may become infected. TB can spread rapidly where people are living in crowded conditions. Children get the disease from adults with lung disease. In some areas it is possible to become infected by consuming unpasteurized milk (bovine TB).
- Signs and symptoms of TBC; The general symptoms of TB include: weakness, weight loss, fever and night sweats. In TB of the lungs (pulmonary TB) the symptoms include: persistent cough, chest pain and coughing up of blood. However, in young children the only sign of pulmonary tuberculosis may be: failure to thrive and stunted growth. Other signs and symptoms depend on the part of the body that is affected. For instance, in TB of the bones and joints there may be swelling, pain, crippling effects in the hips, knees or spine.
- Diagnostic methods: Taking a history from the person you suspect of having TB will allow you to decide if they need to be referred for a sputum examination. Diagnosis of tuberculosis is made at health centers and hospitals, but you will make a vital contribution by identifying those individuals who may be infected with TB and referring them for investigation.
 - ✓ Sputum smears examination (Microscopic) Every TB suspect should have sputum smear examined to determine whether tubercle bacilli are present in the sputum

- Treatment of TB : The drugs used for the TB treatment are safe and effective if properly used. The following drugs are used as first line treatment of TB in Ethiopia:
 - ✓ Rifampicin(R);
 - ✓ Ethambutol (E);
 - ✓ Isoniazid (H);
 - ✓ Pyrazinamide (Z) and
 - ✓ Streptomycin (S).

Table 5.2. Recommended treatment regimens for each treatment category.

Treatment category	TB treatment regimen	
	Intensive phase (daily or three times every week)	Continuation phase (daily or three times every week)
Category I	2(RHZE)	4(RH)
Category II	2 (RHZE) followed by 1 (RHZE)	5 (RHE)
Category III	2(RHZE)	4(RH)
Category IV	Second-line	drugs Second-line drugs

Table 5.4. Treatment category by type of patient

Treatment category	Type of patient
category I	Sputum smear-positive; new Sputum smear-negative; seriously ill, new EPTB; seriously ill, new Others (e.g. TB with HIV infection)
category II	Sputum smear-positive; relapse Sputum smear-positive; failure Sputum smear-positive; return after default PTB patients who become smear-positive after two months of treatment (case definition = other) Return after default from re-treatment Relapses after re-treatment
category III	Sputum smear-negative, not seriously ill, new EPTB, not seriously ill, new
category IV	Chronic and drug resistant-TB cases (still sputum positive after supervised re-treatment)

- Management of Patients to Prevent Transmission of TB in Community and Healthcare Setting:
 - ✓ Screen: Early identification and detection of patients with suspected or confirmed TB disease is the first step in the protocol. This can be achieved by assigning a staff member in a health facility and trained community health workers to screen patients for prolonged duration of cough and take immediate action. Patients with cough of more than two weeks duration, or who report being under investigation or treatment for TB*, should not be allowed to wait in the line with other patients. Instead, they should be managed as outlined below
 - ✓ Educate: Educating the above-mentioned persons identified through screening, in cough etiquette and respiratory hygiene. This includes instructing them to cover their noses and mouths when coughing or sneezing, and when possible providing facemasks, handkerchiefs or tissues to assist them in covering their mouths. Respiratory hygiene

includes proper disposal of tissues and masks. Patients and their families should also be educated on the signs and symptoms of TB disease.



Figure 5.7. Facemasks

- ✓ Natural ventilation: refers to fresh air that enters and leaves a room or an area through openings such as open doors and/or windows. Control occurs when openings are deliberately secured open to maintain air flow. Unrestricted openings (that cannot be closed) on opposite sides of a room provide the most effective natural ventilation. When fresh air enters a room it dilutes the concentration of particles in room air such as droplet nuclei containing *M. tuberculosis*.
- ✓ Mechanical ventilation: In situations where natural ventilation is not feasible or is inadequate, mechanical ventilation can be used to reduce the concentration of infectious droplet nuclei in selected areas or rooms of the healthcare facility (e.g. patient rooms, waiting rooms, or examination rooms). It is also important to use equipment with sufficient power to facilitate air entry into and exhaust from the room or are

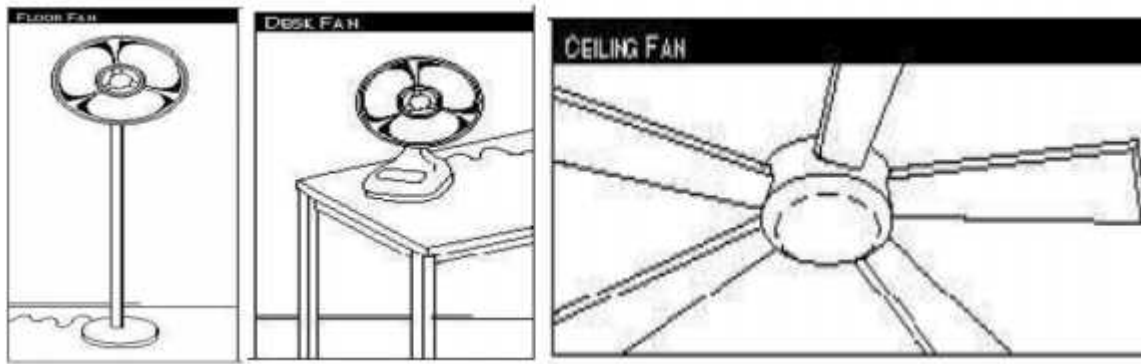


Figure 5.8. different types of ventilation Mechanical Ventilation

5.1.7. Leprosy:

- is a chronic infectious disease caused by *Mycobacterium leprae*, an acid-fast, rodshaped bacillus. The disease mainly affects skin, peripheral nerves, mucosa of the upper respiratory tract and the eyes. It affects persons in all age groups and both sexes. The age group mainly affected is between 15 and 45 years. Factors related to poverty increase the risk of developing the disease.
- Transmission of Leprosy: is transmitted through air-borne spread of droplets, from the nose and mouth, containing the bacilli expelled by untreated leprosy patients and inhaled by healthy persons. Persons living in the same household or who otherwise are in frequent contact with an infectious person have the greatest risk of being exposed to the bacilli.
- Clinical Manifestation of Leprosy:
 - ✓ Pale or reddish patches on the skin with loss of, or decreased sensation on the skin
 - ✓ Painless swelling or lumps in the face and earlobes
 - ✓ Numbness or tingling of the hands and/or the feet
 - ✓ Weakness of eyelids, hands or feet
 - ✓ Enlarged (Thickened), painful and/or tender nerves
 - ✓ Burning sensation in the skin
 - ✓ Painless wounds or burns on the hands or feet



Figure: 5.9 Pale skin lesions on the back and Damage to the eyes, face, hands and feet of leprosy patient

- ✓ The three cardinal (very important) signs for confirmation of diagnosis of leprosy are
 - ✓ Hypo-pigmented or reddish skin lesion(s) with definite sensory deficit
 - ✓ Involvement of the peripheral nerves: Demonstrated by definite thickening of the nerve with/ without loss of sensation and/or weakness of the muscles of the hands, feet or eyes supplied. Positive skin smears: in a small proportion of cases, leprosy bacteria may be seen in the smears taken from the affected skin when examined under a microscope.
- ✓ Classification of Leprosy: For the choice of the treatment regimen, patients should be classified according to the WHO classification based on the number of leprosy skin lesions and nerve
 - ✓ Paucibacillary (PB) leprosy : One to five leprosy skin lesions.and Only one nerve trunk enlarged
 - ✓ Multibacillary (MB) leprosy: Six or more skin lesions, Less than six skin lesions, which have a positive slit skin, smear result.and Involvement (enlargement) of more than one nerve
- ✓ Treatment of Leprosy: The drug administration for treatment of leprosy with MDT has two phases;

- ✓ Daily-self-administered treatment and taken every day at home.
- ✓ Monthly, Directly- Observed treatment taken at a health Post with the presence of a health extension worker to observe the patient taking the drugs.
- ✓ There are two types of Multidrug Therapy MDT regimens. The Paucibacillary (PB)-MDT and Multibacillary (MB)- MDT:

Table5.4 MDT regimen for Paucibacillary (PB) leprosy

Drugs	0-5 yrs old	6-14 yrs old	≥ 15 yrs old
Rifampicin (4-weekly supervised)	300 mg	450 mg	600 mg
Dapsone (daily, unsupervised)	25 mg	50 mg	100 mg

Table 5.5 MDT regimen for MB Leprosy

Drugs	0-5 yrs old	6-14 yrs old	≥ 15 yrs old
Rifampicin (4-weekly supervised)	300 mg	450 mg	600 mg
Clofazimine (4-weekly supervised)	100 mg	150 mg	300 mg
Clofazimine (unsupervised)	50 mg twice a week	50 mg every other day	50 mg daily
Dapsone (daily, unsupervised)	25 mg	50 mg	100 mg

- ✓ Prevention of disabilities by:
 - ✓ Early diagnosis and prompt treatment.
 - ✓ Recognizing signs and symptoms of leprosy reactions with nerve involvement an
 - ✓ referring to a hospital for advice on what to do. Encouraging and training patients in the practice of self-care.
 - ✓ Educating patients to recognize early signs of nerve function impairment and to report this immediately

5.1.8. Sexually transmitted diseases STDs:

- ✓ is a term used to describe more than 20 different infections that spread primarily through sexual intercourse and can have long term negative consequences including reproductive tract infections, infertility and stillbirths. The worldwide incidence of STDs is high and increasing. The situation has worsened with the emergence of the HIV epidemic. The social and economic disadvantages that women face make them vulnerable to STDs, including HIV/AIDS. The risk of transmission from infected men to women is greater than from infected women to men, and many women are powerless to take steps to protect themselves. The four most common STDs (excluding AIDS) are gonorrhoea, syphilis; chancroid, Chlamydia and trichomoniasis are relatively easy to cure using antibiotics. However, many people especially women who have STDs, may not have any symptoms and so do not know that they need treatment. Effective prevention of STIs reduces complications that are life threatening for the infected individual, and decreases economic and psychosocial problems associated with the complications arising from STIs. STIs poses complications like pelvic inflammatory disease (PID), inflammation of the uterus and fallopian tubes due to bacterial infection or other pathogens, infertility, ectopic pregnancy (pregnancy outside of the uterus). For patients who are HIV-negative, or who have not been tested, the presence of STI is an important indication to trigger testing. So you should refer any patient presenting with STIs for HIV counselling and testing services
 - ✓ The most common mode of transmission of STIs: is sexual transmission. The modes of transmission could be vaginal or anal sex. In Ethiopia, heterosexual transmission is the most common mode of transmission of STIs. Another mode of transmission is mother-to-child during pregnancy (HIV and syphilis), at delivery (gonorrhoea and chlamydia), and during breastfeeding.
 - ✓ Syndrome management of STIs : A syndrome is a group of symptoms that a patient complains and clinical signs you observe during examination. Different organisms that cause STIs give rise to limited number of syndromes. The syndrome approach is the most effective way to treat persons with RTIs especially when no laboratory facilities are available.

Once a syndrome has been identified, treatment can be provided against the majority of the organisms responsible for the syndrome. The syndromic approach is well suited to resource poor settings and enables health care workers to make diagnosis within a short time without special skills and sophisticated laboratory tests. Health workers at health center and hospitals can identify one of these syndromes and treat accordingly using the syndromic approach. The objective of introducing you to syndromic management of STIs is to help you identify and refer cases to the nearest health center. At this moment you are not expected to treat STI cases either at the health post or in the community

Table 5.6 seven syndromes with their causes, sign and symptoms and managements

Syndrome	Signs and symptoms	Most common causes	Management
Vaginal discharge	Unusual vaginal discharge, vaginal itching, dysuria (pain on urination and pain during sexual intercourse)	Trichomoniasis, Bacterial vaginosis, Candidiasis, Gonorrhoea, Chlamydia	Promote and provide condoms
Urethral discharge	Urethral discharge, dysuria, frequent urination	Gonorrhoea, Chlamydia	Consider HIV-related illness; offer HIV testing and counselling
Genital ulcer	Genital sore	Syphilis, Chancroid, Genital herpes	Educate on STIs, HIV and risk reduction
Lower abdominal pain	Vaginal discharge, fever, lower abdominal pain and tenderness	Gonorrhoea, Chlamydia,	
Scrotal swelling	Pain and swelling of the scrotum	Gonorrhoea, Chlamydia	
Inguinal bubo	Painful enlarged lymph nodes on the groin	Lymphogranuloma venereum (LGV), Chancroid	Consider partner tracing
Neonatal conjunctivitis	Swollen eyelids, eye discharge in newborns and infants	Gonorrhoea, Chlamydia	Refer to health center



Figure 5.10 Urethral discharge Syndrome



Figure 5.11 Genital ulcer syndrome



Figure 5.12 Inguinal bubo syndrome



Figure 5.13 Neonatal conjunctivitis

- All STI cases that you identify at your health post and in your community have to be referred to the nearest health center for treatment. The following key interventions:
 - ✓ Educating clients about the transmission, treatment and control of STIs and HIV
 - ✓ Providing risk reduction counselling by focusing on the prevention of STIs and HIV
 - ✓ Condom promotion and provision for all clients
 - ✓ Consideration of HIV-related illness and offering provider-initiated counselling and testing
 - ✓ Partner counselling and treatment: management of partners for STIs is an essential component of STIs to stop further recurrent infection among partners
 - ✓ Encouragement for HIV testing through provider-initiated counseling
 - ✓ Referral of patients and their partners to counselling units and laboratories for HIV and syphilis testing, or to higher health care if they do not respond to syndromic treatment of STI
- preventing sexual transmission of STIs: STIs including HIV-transmission prevention through the sexual route aims to avoid or reduce contact between blood and/or sexual fluids of an infected person and the internal linings of another person. The most widely known strategies for prevention of STIs transmission through the sexual route are often known as the 'ABC rules':
 - ✓ . 'A' stands for 'Abstinence', means refraining from premarital sexual intercourse.
 - ✓ 'B' stands for 'Be faithful', means maintaining faithful relationships with one partner.

- ✓ 'C' stands for 'Condoms use', means correct and consistent use of condoms in sexual relations.

5.1.9. Introduction Common Intestinal parasite

Here we will discuss the main intestinal parasitizes caused by parasites living in the intestines.

- ✓ protozoa (single-celled organisms) causing amoebiasis and giardiasis,
 - ✓ the intestinal helminths known as ascaris worms and hookworms.
 - ✓ other, much larger, intestinal parasites
 - ✓ It is important for you to know about these diseases so that you can treat or refer cases and apply prevention and control measures in your community.
 - ✓ The prevention and control measures for these conditions are the same as you have already learned in earlier study sessions in relation to other faeco-oral diseases. However, you will notice that there are significant differences in the symptoms and treatment of the parasitic diseases described here.
- Amoebiasis
Amoebiasis is a disease resulting from infection of the large intestine (colon) by a protozoan parasite called *Entamoeba histolytica*.



Figure 5.16 *Entamoeba histolytica* magnified over 1,000 times and stained blue to reveal its large nucleus. (Photo: CDC Image Library, image 607)

- ✓ Most people with amoebae in their intestines show no symptoms, but they can pass on the amoebae to others and are an important reservoir of infection. Individuals who develop amoebiasis, experience bloody diarrhea (so the disease is also known as amoebic dysentery), fever and abdominal cramps, sometimes alternating with periods of constipation. Unlike in cases of bacillary dysentery, the blood and mucus is mixed with solid stool and patients are not usually bedridden. Very rarely, amoebiasis can lead to serious complications, including abscesses in the liver, lungs or brain.
- ✓ Another difference between dysentery caused by amoebae and dysentery caused by Shigella bacteria is that amoebiasis mainly affects young adults; it rarely occurs below the age of five years. By contrast, dysentery in children under ten years is mainly due to Shigella species. Also, amoebiasis does not usually produce epidemics, so an epidemic of dysentery is most probably due to cases of shigellosis.
- ✓ Some amoebae in an infected person's intestines transform and become encased in a round protective membrane called a cyst. The cysts pass out of the body in the faeces. They are highly resistant to damage and can be transmitted by direct and indirect faeco-oral routes, mainly via contaminated food or water. They hatch out in the new person and the protozoa rapidly increase in number by cell division.
- ✓ For accurate diagnosis, laboratory identification of the cysts in the patient's stool is necessary to differentiate it from shigellosis. Therefore, you should start any patient with dysentery on rehydration with ORS and refer them to the nearest higher level health facility for further investigation and specialist treatment. Advise the patient or caregiver that further investigation is needed for diagnosis and that early treatment is important because the disease could lead to serious outcomes.

- Giardiasis

- ✓ is a faeco-oral disease which results from infection of the small intestine by protozoa called Giardia intestinalis, also known as Giardia duodenalis.
 - ✓ The commonest clinical manifestation of giardiasis is

- foul-smelling, pale greasy diarrhoea, without blood or mucus (mucoid).
 - The diarrhoea can be acute and resolve by itself within a few days, or it may be persistent (lasting for more than 14 days).
 - Other symptoms of giardiasis include nausea, vomiting, abdominal cramps and abdominal distension (swelling).
- ✓ You should suspect giardiasis in children if the diarrhoea is persistent, but not bloody or mucoid. For children with mild non-bloody or non-mucoid diarrhoea, the management does not require identification of the infectious agent; cases are managed with oral rehydration. If a child has persistent or severe diarrhoea, and giardiasis is one of the causes you suspect, treatment is carried out at a higher level health facility on a case-by-case basis, taking into account the presence of other symptoms and/or malnutrition. Therefore, you should start ORS treatment and refer the child.
- ✓ Amoebiasis and giardiasis both present with diarrhoea. The main difference in the type of diarrhoea is that in amoebiasis it is bloody or mucoid (contains mucus), whereas in giardiasis it is pale, greasy and foul smelling.
- Intestinal roundworms
 - ✓ In this section, you will learn about diseases caused by roundworms living in the intestines.
 - ✓ Helminthes is the collective name given to parasitic worms.
 - ✓ They have complicated lifecycles, and some helminths require transmission between humans and other host animals before they mature.
 - ✓ There are three main groups of helminthes:
 - the roundworms,
 - the tapeworms
 - the flatworms (or flukes).
 - ✓ Here we focus on intestinal roundworms (helminths that are round in cross-section), which live in the person's intestines and exit from the body in the faeces.
 - ✓ The two commonest intestinal roundworms in Ethiopia
 - cause the diseases known as ascariasis and hookworm infection.

- Neither of these conditions is characterized by diarrhea, so they are not classified as diarrheal diseases.

- Ascariasis

- ✓ Like other faeco-oral diseases, you need to know the main features of ascariasis: its infectious agent, occurrence, modes of transmission, symptoms and signs, diagnosis and treatment. Prevention and control measures are similar to those for other faeco-oral diseases, described in earlier study sessions. However, ascariasis requires specific drug treatment based on its symptoms and signs.
- ✓ Ascariasis results from infection of the small intestine with a helminth parasite called *Ascaris lumbricoides*. It is the largest of the intestinal roundworms; mature worms can measure 15–35 cms in
- ✓ It is the commonest of all the faeco-oral diseases caused by parasitic helminthes. It mainly affects children, particularly between three to eight years of age



Figure5.17 A female adult ascaris worm

- ✓ The complicated lifecycle of ascaris worms
- ✓ Adult *Ascaris lumbricoides* worms in the intestines
 - lay eggs which pass out with the faeces
 - The eggs are transmitted faeco-orally by Ingestion of contaminated food, water, etc.
 - (Stages 2 to 4). The eggs hatch and develop into larvae (immature stage) in the intestines
 - The larvae are carried in the bloodstream to the lungs, where they develop further

water to help them to take the dose. This regimen kills hookworms as well as ascaris worms.

Table 5.7 Deworming schedule for ascariasis or hookworm, depending on the age of the child.

Drug	Age 0 to 2 years	Age 2 to 5 years
Albendazole (400 mg tablet)	None	1 tablet (400 mg)
Medendazole (100 mg or 500 mg tablets)	None	1 × 500 mg tablet (or 5 × 100 mg tablets)
Mebendazole oral suspension (Figure 34.5)	2.5 teaspoons (250 mg)	None



Figure 5.19 Bottles of oral mebendazole suspension in a Health Post store. (Photo: Basiro Davey)

- Hookworms

- ✓ live in the small intestine and suck blood from blood vessels in the intestinal walls. The main infectious agents are called *Necator americanus* and *Ancylostoma duodenale*. Hookworm infection is endemic in Ethiopia, especially in areas where people walk barefooted and sanitary conditions allow faeces to contaminate the soil.

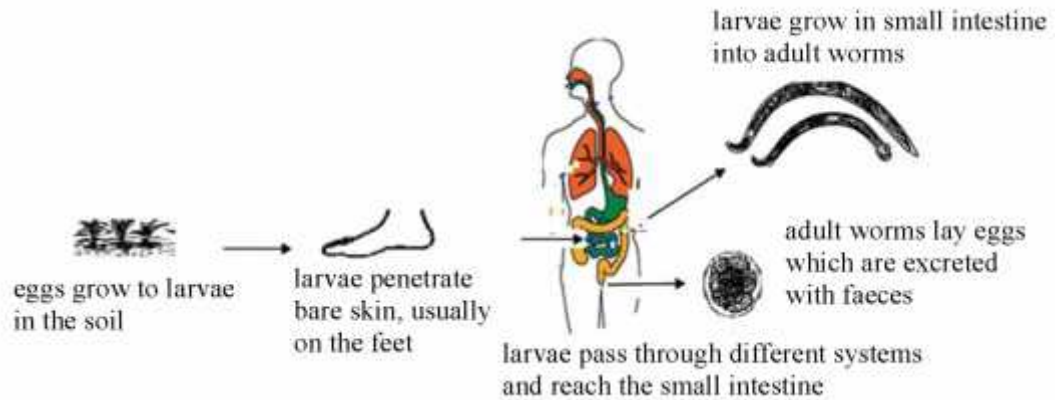


Figure 5.20 The transmission cycle of hookworms.

)

- Preventive methods

- ✓ In addition to all the measures involving personal hygiene after defaecation, before food preparation and when eating etc., you should specifically educate your community to interrupt the transmission of hookworms by:

- Wearing shoes to prevent the parasites from entering through skin while walking barefooted
 - Using latrines, disposing of faeces safely and stopping open defaecation in fields, to prevent contamination of soil with the parasites.

- Diagnosis and treatment of hookworm infections

- ✓ Cases of chronic hookworm infection manifest with abdominal pain and the symptoms and signs of anaemia, due to blood loss caused by the blood-sucking worms. It is very important that you treat worm infestations routinely in children aged from two to five years, because persistent hookworm infections (like ascariasis) causes a significant loss of micronutrients (minerals and vitamins) from the body. Infected individuals may develop anaemia, which can be life-

threatening. Anaemic children fail to grow properly and their school performance will be negatively affected.

- ✓ Anaemia refers to a deficiency of haemoglobin in the blood.
- ✓ Haemoglobin is the red, iron-rich protein that gives red blood cells their colour and enables them to pick up oxygen and transport it around the body.



Figure 5.21 Paleness inside the eyelids and gums are signs of Anemia.

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Which is found worldwide in tropical and subtropical areas(1point)

A .P.falciparum	B.P.malariae
C. P.ovale	D. P. vivax

2. Typical sign of cholera is(1 point)

A. rice water diarrhea	C. bloody diarrhea
B. mucoid diarrhea	D. constipation

3. Which of the following statements is false? In each case, state why it is incorrect(1 point).
 - A. Typhoid fever is transmitted mainly indirectly by contaminated food or water.
 - B. Diarrheal diseases can lead to severe dehydration and shock.
 - C. Viruses are the commonest cause of diarrhea in children.
 - D. The characteristic manifestations of cholera include bloody diarrhea

4. Suppose a 30-year-old man came to you complaining of diarrhoea. You asked about the type of diarrhoea and the patient described it to you. Which diseases do you suspect, if he describes the diarrhoea as:

- | A | B |
|-------------------------|---------------------|
| 1_____Bloody with mucus | a.amoebic dysentery |
| 2_____ rice Watery | b.giardia |
| 3._____ Pale and greasy | c. cholera |
| | d. shiglosis |

Note: Satisfactory rating – 3 points **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

Operation Sheet- 1

Identifying, Diagnosis, Treatment, Prevention and Control of
Common communicable diseases of:

1.1. The procedure to use RDT

Step 1: Put on gloves before beginning

Step 2: Open the RDT package and remove the contents.

Step 3: Write the patient's name on the cassette.

Step 4: Once the patient's finger is dry, open the lancet

Step 5: Turn the 'patient's' arm so their palm is facing downward.

Step 6: Use the device (capillary tube, straw, loop, pipette or other) to add the drop of blood to the sample window (square hole labeled with the letter

Step 7: Add the buffer solution to the round hole labeled

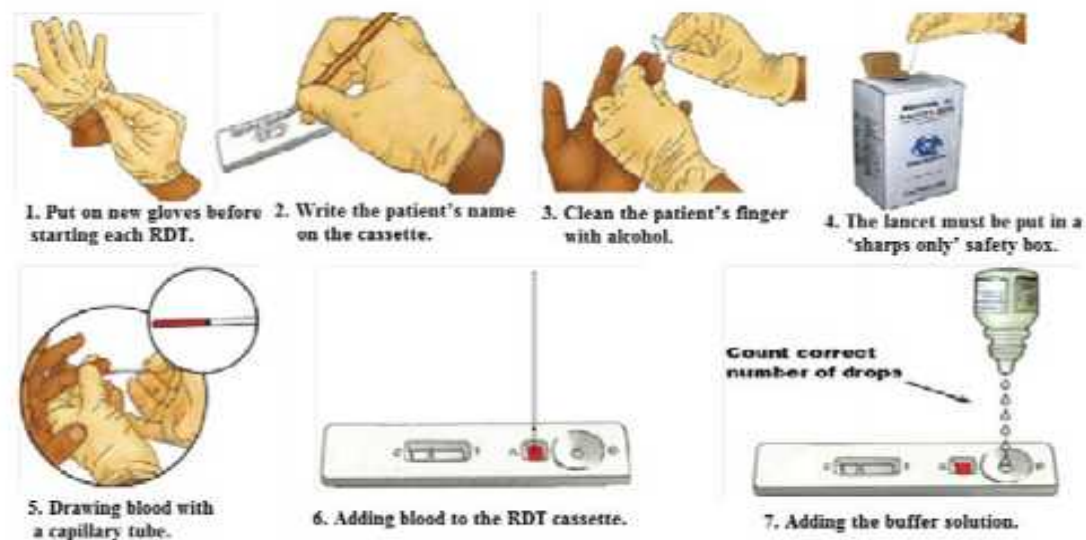


Figure 1.1. Procedure of RDT

- 1.2. Procedures of cholera management
- Step 1: prepare equipments and materials
 - Step 2: wash hands
 - Step 3: wear PPE and disinfect the room
 - Step 4: assess the client
 - Step 5: rehydrate the client
 - Step 6: collect stool specimen
 - Step 7: record and report immediately
 - Step 8: wash hands
 - Step 9: conduct health education

LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 1-2 hours.

Task 1: perform RDT

Task 2: demonstrate management of cholera

List of Reference Materials

1. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
2. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
3. (<http://www.dpd.cdc.gov/dpdx/HTML/Hookworm.htm>)
4. WHO, UNICEF, USAID; UPDATE ON HIV TREATMENT June 2013: RESULTS, IMPACT AND OPPORTUNITIES
5. WHO, Antiretroviral therapy for HIV infection in infants and children: towards universal access, 2010 revision
6. FHI, USAID, HIV/AIDS Prevention and Care in Resource-Constrained Settings, 2001.
7. FMOH, Report on progress towards implementation of the UN Declaration of Commitment on HIV/AIDS, March 2010
8. FMOH, Guidelines for Prevention of Mother-to-Child Transmission of HIV In Ethiopia, July 2007
9. WHO; ANTIRETROVIRAL THERAPY FOR HIV INFECTION IN ADULTS AND ADOLESCENTS: Recommendations for a public health approach, 2006 revision
10. FMOH, Guidelines for cotrimoxazole prophylaxis in HIV/AIDS care and treatment, 2006
11. FMOH, Guidelines for HIV Counselling and Testing in Ethiopia, July 2007
12. FMOH, Paediatric HIV/AIDS Care and Treatment Guidelines in Ethiopia, July 2007
13. WHO; Use of Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants, April 2012
14. WHO, Guidelines on HIV testing, March 2007
15. Ethiopian Health and Nutrition Research Institute, Public Health Emergency
16. Management Guidelines for Ethiopia Feb. 2012
17. FMOH, INFECTION PREVENTION GUIDELINES for Healthcare Facilities in Ethiopia, Addis Ababa, JULY 2004
18. WHO, Standard precautions in health care facility, 2007

Learning Guide-28

LO2: Educate the community on early detection and prevention of communicable diseases

Instruction Sheet

Learning Guide # 28

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

- . Community Diagnosis
- Plan for health education on identified gaps
- Providing health education on prevention and control
- Documenting and reporting

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to::

- conduct Community diagnosis is based on the standard procedure.
- Develop Plan based on the identified gaps.
- Select and design Teaching strategies as per the identified gaps.

- Collect Teaching materials as per the designed teaching methodology.
- Explain Prevention and control methods of communicable disease according to the existing health education guideline.
- document, report and followed up Activities based on the standard format

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, and Sheet 4
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, and Self-check 4.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1
6. Do the “LAP test” **in page – 72** (if you are ready)

Information Sheet-1	. Community Diagnosis
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- 1.1. Definition of a “Community”:

 - A cluster of people with at least one common characteristic (geographic location, occupation, ethnicity, housing condition.....) A group of people with a common characteristic or interest living together within a larger society

- 1.2. Community diagnosis:

 - Is a method of identifying health problems in a community or group of individuals. This provides basis for decision on the need for intervention, the type of intervention needed and target group at whom it should be directed, as well as giving an indication for resources that intervention will require. It forms baseline information for future comparison.

- 1.3. Community diagnosis involves the following four steps:
 - 1.3.1. Data collection: Data collection refers to gathering data about the health problems present in the community. This is important as it will help you to have good ideas about the type of problems present in the area where you work.

Where do you get useful data concerning the health problems in your community? The following sources of data can be used

- Discussion with community members about their main health problems
- Reviewing records of the health services utilized by the community
- Undertaking a community survey or a small-scale project
- Observing the risks to health present in the community.

1.3.2. Data analysis: Data analysis refers to categorizing the whole of the data you collected into groups so as to make meaning out of it. For instance you can assess the magnitude of a disease by calculating its prevalence and its incidence from the numbers of cases you recorded and the number of people in the population in your community. Prevalence refers to the total number of cases existing in the population at a point in time, or during a given period (e.g. a particular month or year). The number of cases can be more usefully analyzed by calculating the prevalence rate in the community: to do this you divide the total number of cases you recorded in a given period into the total number of people in the population. The result is expressed 'per 1,000 population' in a community as small as a kebele. For example, suppose that in one year you record 50 cases of malaria in a kebele of 5,000 people: for every 1,000 people in the kebele, there were 10 malaria cases in that year. So the prevalence rate of malaria in that kebele is expressed as 10 cases per 1,000 people in that year. Calculating the prevalence rate is more useful than just counting the number of cases, because the population size in your kebele can change over time. The prevalence rate takes account of changes in the number of people, so you can compare the prevalence rates from different years, or compare the rate in your kebele with the rate in another one. Incidence refers only to the number of new cases of a disease occurring in a given period. The incidence rate is calculated by dividing the total number of new cases of the disease in a certain period of time into the total number of people in the population, and is expressed as 'per 1,000 population. As a health professional working in a community affected by several health problems at the same time it is difficult to address all the problems at once. Therefore, you should give priority to the most important ones first. But how do you prioritize? You are going to see how to do that nex

1.3.3. Prioritizing health problems: Prioritizing refers to putting health problems in order of their importance. The factors that you should consider in prioritizing are:

- The magnitude of the problem: e.g. how many cases are occurring over what period of time?
- The severity of the problem: how high is the risk of serious illness, disability or death?•
- The feasibility of addressing the problem: are the prevention and control measures• effective, available and affordable by the community?
- The level of concern of the community and the government about the problem.

Health problems which have a high magnitude and severity, which can be easily solved, and are major concerns of the community and the government, are given the highest priority. After prioritizing which disease (or diseases) you will give most urgent attention to, the next step is to develop an action plan

1.3.4. Action plan: An action plan sets out the ways in which you will implement the interventions required to prevent and control the disease. It contains a list of the objectives and corresponding interventions to be carried out, and specifies the responsible bodies who will be involved. It also identifies the time and any equipment needed to implement the interventions. Once you have prepared an action plan you should submit it for discussion with your supervisor and other officials in the woreda Health Office to get their approval. Then implement the work according to your plan. Now that you have learned the basic concepts and methods relating to communicable diseases in general, it is time for you to move on to consider the diagnosis, treatment, prevention and control of specific diseases. In the next two study sessions, you will learn about the bacterial and viral diseases that can be prevented by vaccination.

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

- 1. gathering data about the health problems present in the community is(2point)
 - A. Data analysis
 - B. Action plan
 - C. Data collection
 - D. Prioritizing

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

	Plan for health education on identified gaps
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1.1. Plan sets out: the ways in which you will implement the interventions required to prevent and control the disease. It contains a list of the objectives and corresponding interventions to be carried out, and specifies the responsible bodies who will be involved. It also identifies the time and any equipment needed to implement the interventions. Once you have prepared an action plan you should submit it for discussion with your supervisor and other officials in the woreda Health Office to get their approval. Then implement the work according to your plan. Now that you have learned the basic concepts and methods relating to communicable diseases in general, it is time for you to move on to consider the diagnosis, treatment, prevention and control of specific diseases. In the next two study sessions, you will learn about the bacterial and viral diseases that can be prevented by vaccination

1.2. plan of health education should include the following components:

- Clear objectives
- Your strategies
- A list of activities that you will do
- Who will help you
- Resources to be used
- Timing
- Indicators.

Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. plan of health education should include the following components: (2point)

- | | |
|---------------------|-------------------------|
| A. Clear objectives | B. Resources to be used |
| C.A &B | D.none |

Note: Satisfactory rating - 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

3.1. Prevention of communicable diseases: is an important aspect of community Health. Preventive actions can be taken at any stage of the spectrum of Health. Most preventive actions are focused on those who are not affected. Preventive actions are aimed at curtailing and controlling diseases with the sole purpose of minimizing morbidity and mortality in the population. This will help you in identifying appropriate measures for the prevention and control of communicable disease

3.1.1. Levels of Prevention: The levels of prevention provide foundation for planning preventive programs and education. Targeting levels of prevention ensures effective education intervention by promoting protective factors and reducing risky behaviors The three levels of prevention are:.

- Primary level of prevention: The aim of primary prevention is to prevent the development of disease /diseases in population by modification of risk factors.
- Secondary level of Prevention: This level of prevention is directed to those individuals who have developed disease. The secondary level prevention approach is valid for treatment of Tuberculosis, Leprosy, Malaria and other communicable diseases. Preventive activities are aimed at early disease detection thereby increasing opportunities for interventions to prevent progression of the diseases and emergence of symptoms. The two main requirements for a useful secondary prevention programmed are a safe and accurate method of detecting the disease – preferably at a preclinical stage – and effective methods of intervention
- Tertiary level of prevention: This is applied when an individual has reached an advanced stage of disease.

Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. preventing the development of disease /diseases in population by modification of risk factors is:

- A. Tertiary level of prevention
- B. Secondary level of Prevention
- C. Primary level of prevention
- D.All

Note: Satisfactory rating - 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Question

	Documenting and reporting
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4.1. Recording and reporting all your health education activities: is very important, and you must record all your routine health education activities according to the standard documentation guidelines provided for you (Figure 15.5). It is usually considered that an activity which is not recorded has not been done. So, if you fail to document or record the activities you have accomplished, others will not know whether or not the activity has been performed

4.1.1. During the implementation of a health education activity, the following information should be recorded:

- Number of people who received health education (total, male, females)
- The topic addressed, and the content of the message
- The place where the health education activity was delivered
- The person who delivered the health education session
- The materials used (posters, leaflets, etc.)
- The method used (discussion, drama, etc.)
- Number of households reached or covered
- Number of health education sessions delivered .
- Were any problems encountered?

Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. During the implementation of a health education activity, the following information should be recorded(2point0

- A. The materials used (posters, leaflets, etc.) B. The method used (discussion, drama, etc.)
C .Number of households reached or covered D. All

Note: Satisfactory rating - 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Question



Operation Sheet-

Providing health education on prevention and control

1.1 hand washing technique

Wet hands, apply soap and use the following procedure

1. Rub palm to palm



2. Rub back of both hands

3. Rub palm to palm with fingers interlaced



4. Rub backs of fingers (interlocked)



5. Rub all parts of both hands

6. Rub both palms with finger tips

7. Rinse hands under running water and dry thoroughly on a clean towel.



LAP Test	Practical Demonstration
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N

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within --- hour.

Task 1 hand washing



List of Reference Materials

1. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
2. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
3. (<http://www.dpd.cdc.gov/dpdx/HTML/Hookworm.htm>)
4. WHO, UNICEF, USAID; UPDATE ON HIV TREATMENT June 2013: RESULTS, IMPACT AND OPPORTUNITIES
5. WHO, Antiretroviral therapy for HIV infection in infants and children: towards universal access, 2010 revision
6. FHI, USAID, HIV/AIDS Prevention and Care in Resource-Constrained Settings, 2001.
7. FMOH, Report on progress towards implementation of the UN Declaration of Commitment on HIV/AIDS, March 2010
8. FMOH, Guidelines for Prevention of Mother-to-Child Transmission of HIV In Ethiopia, July 2007
9. WHO; ANTIRETROVIRAL THERAPY FOR HIV INFECTION IN ADULTS AND ADOLESCENTS: Recommendations for a public health approach, 2006 revision
10. FMOH, Guidelines for cotrimoxazole prophylaxis in HIV/AIDS care and treatment, 2006
11. FMOH, Guidelines for HIV Counselling and Testing in Ethiopia, July 2007
12. FMOH, Paediatric HIV/AIDS Care and Treatment Guidelines in Ethiopia, July 2007
13. WHO; Use of Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants, April 2012
14. WHO, Guidelines on HIV testing, March 2007
15. Ethiopian Health and Nutrition Research Institute, Public Health Emergency
16. Management Guidelines for Ethiopia Feb. 2012
17. FMOH, INFECTION PREVENTION GUIDELINES for Healthcare Facilities in Ethiopia, Addis Ababa, JULY 2004
18. WHO, Standard precautions in health care facility, 2007



Health extension service

Level III

Learning Guide-29

Unit of Competence: Prevent and controlling common communicable diseases

Module Title: Preventing and controlling common communicable diseases

LG Code: HLT HES3 M04LO3LG 29 0919

TTLM Code: HLT HES3 M04TTLM 0919v1

LO3: Perform disease Surveillance



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

- Definition of Public Health Surveillance
- General Principles of Public Health Surveillance
- Types of Public Health Surveillance
- surveillance procedures
- Integrated Disease Surveillance and Response
- Epidemic Investigation and Management

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

- made Preparations for surveillance
- Prepare Logistics are based on the standard procedure.
- Collect Data through active and passive surveillance procedures.
- Determine Case (possible, probable) based on the standard case definition.
- Submit Timely and complete reports (public burden, epidemic prone, under elimination/eradication) using the existing guidelines.
 - carry out Appropriate action is in collaboration with different stake holders

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, Sheet 4 Sheet 5. and sheet 6
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4” Self-check 5, and Self-check6.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1,.
6. Do the “LAP test” in page – 97 (if you are ready).



1.1. Public health surveillance:

- Which consists of observation, recording and reporting of cases of important communicable diseases or conditions in the community. A good knowledge of public health surveillance will enable you to detect the occurrence of excess cases of communicable diseases and report them to the higher authorities. Using public health surveillance data, you can also assess the magnitude of major communicable diseases, by counting the number of cases occurring over a period of time. Collecting and analyzing public health data will help you to plan appropriate measures to control communicable diseases. This session will also cover the types of surveillance and the activities you will undertake in recording and reporting disease. You will learn more about the different kinds of epidemics investigation and management. A better understanding of epidemics will help you to detect an outbreak or epidemic of a communicable disease and report it immediately to the Health Center and/or District Health Office. You are expected to help the District Health Team in the control of any epidemics in your catchment area.



Information	General Principles of Public Health Surveillance
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2.1. Public health surveillance: is a continuous data collection, data analysis, interpretation of the data, and dissemination of the information to concerned bodies. Health extension workers will routinely need to collect, analyze and interpret health-related data, and send reports of your findings to the nearby Health Center. In addition, during an outbreak or epidemic of infectious disease, you will need to work with other health team members to actively find new cases in your catchment area. Surveillance provides ‘information for action’ which can be used to investigate, prevent and control disease in a community.



Information Sheet-3	Types of Public Health Surveillance
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3.1. Types of public health surveillance There are three basic types of surveillance systems – passive, active and mixed surveillance – and you need to know about and do them all.

3.1.1. Passive surveillance: refers to the collection of data by health facilities as part of their routine work of diagnosis and treatment .It is called ‘passive’ because the data is obtained only from the people who seek help from the health services – the health workers make no additional effort to contact other individuals. In Ethiopia, there is a passive surveillance system based on monthly activity reports and weekly reporting of notifiable diseases, i.e. diseases that must be reported to the health authorities. Most communicable disease outbreaks should be reported by telephone or radio to your Health Centre.



Figure 3.1 A health worker collecting health data as part of her routine practice; here she is asking mothers about the immunization status of their infants.

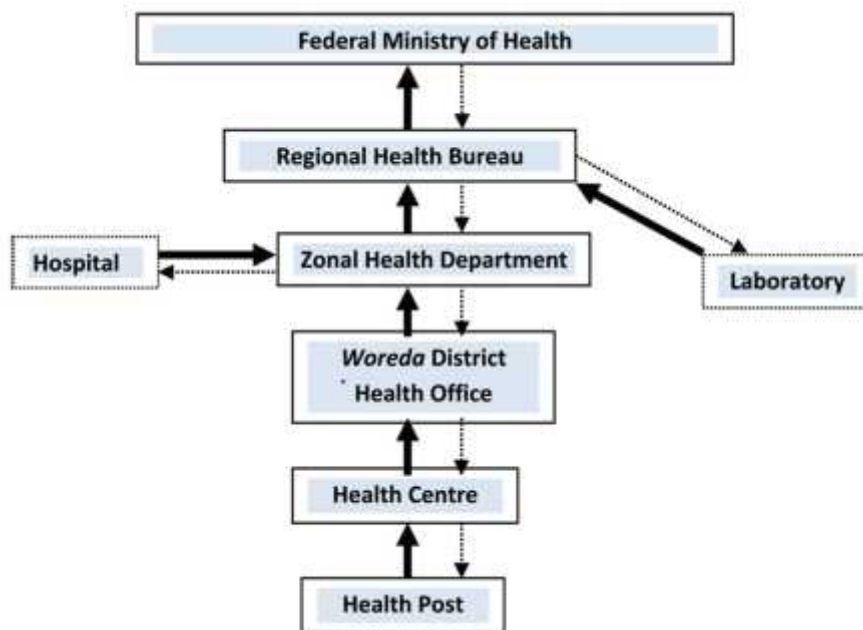


Figure 3.2. Passive surveillance information flow in Ethiopia. The solid arrows show the initial route of information flow. The broken arrows show that contact and information can also flow in the opposite direction.

Passive surveillance is cheap to operate, because it takes place as part of routine health-service work, and it helps you and the higher authorities to monitor the occurrence of many diseases and other health problems. However, it has some disadvantages. The surveillance reports may take a long time to reach the highest level, and some key information may be lacking (e.g. if the health worker forgets to collect data on a statistic such as the sex or age of some patients)

- 3.1.2. Active surveillance: The second type of surveillance is called active surveillance, in which the health professionals actively seek to collect data from all possible cases in their area, under instruction to do so from a higher level in the health system. Active surveillance is usually conducted in relation to a specific disease or disorder, or it seeks to assess the take-up of a particular health service (e.g. family planning, or immunization).



3.1.3. Active surveillance data are collected because the higher health authorities request a specific surveillance report, instead of waiting for Health Posts or other health facilities to send them routine reports. In this sense, it is the opposite of passive surveillance. Figure 40.6 shows the information flow under active surveillance in Ethiopia. The solid black arrows indicate that the FMOH, at the highest level of the health system, takes the first step and requests surveillance data from all lower levels of the health system. Intermediate levels contact those below, all the way down to the level of your Health Post. As the broken arrows show, your Health Post prepares the requested data and sends it back to the Health Centre, the Health Centre sends the data to the woreda District Health Office, and so on to the highest level. Note, that without a request from a higher level, the active surveillance report would not have been prepared and submitted.

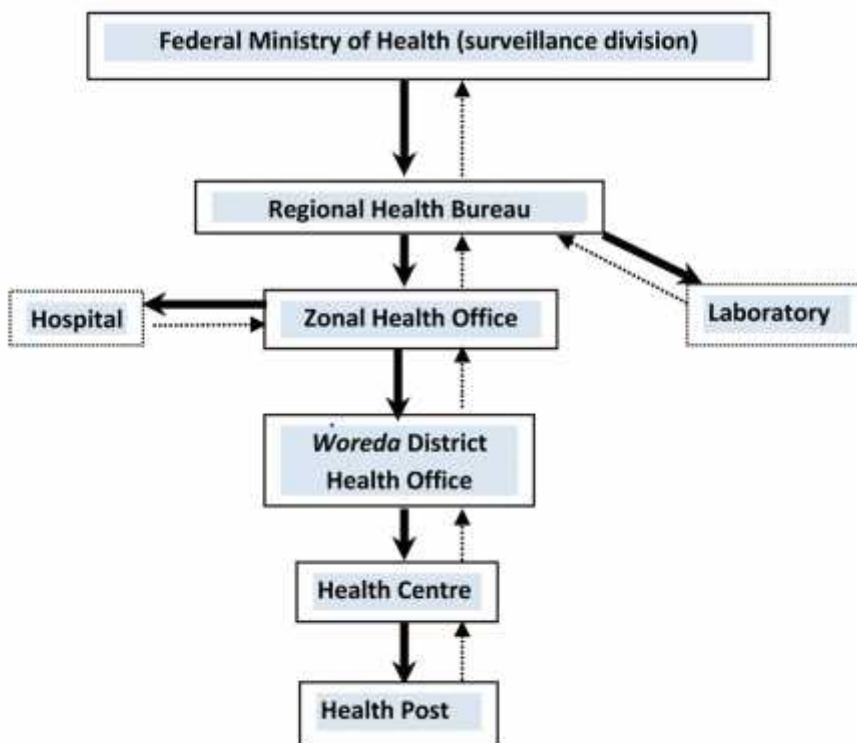


Figure 3.3. Active surveillance information flow in Ethiopia. The solid arrows show the initial requests for information. The broken arrows show how the requested information flows back up the system.



✓ Active surveillance can also be a type of event-based surveillance, which refers to unstructured data gathered from sources such as media reports, community concerns and rumours. For example, if there is a rumour about a measles outbreak in your community, the Health Centre will ask you to report if there are any new cases of measles during a defined period of time.

3.1.4. Mixed surveillance Mixed surveillance means combining passive and active surveillance systems. This can work well, leading to better monitoring of communicable diseases and other health problems. Disease control programmers for HIV/AIDS, polio and malaria use a combination of passive and active surveillance systems.



Information Sheet-4	surveillance procedures
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- 4.1.** Data collection and recording: Gathering and recording data about diseases in your community is a very important activity. As part of your routine activity, you are expected to collect health data from patients when they come to your Health Post. You are also expected to collect data during home visits about illnesses and deaths due to major communicable diseases, as well as about other health-related factors such as nutrition, immunization coverage and use of family planning methods. During data collection, you should record basic information about patients, such as their age, sex, address, symptoms of the illness and suspected disease or disorder
- 4.2.** Analysis and interpretation of public health data: Data analysis is the organization and systematic examination of the data you have collected. Data interpretation is the process of understanding and communicating the meaning of your data. These are the next steps in surveillance after data collection and recording. A useful analysis to carry out is to calculate the number and types of new cases of every disease or disorder, and see how the occurrence is changing over time.
- Counting the number, percentage and types of cases: In order to count the number of cases of a particular disease or disorder, you need to be able to decide if a person really has that condition or not. To calculate the percentage of cases that are due to a particular disease or disorder, you divide the number of cases of that condition by the total number of cases of all diseases and disorders combined, and multiply the result by 100. Example, there were ten cases of TB patients the community of total population of 8000 in 2004. The total numbers of patients for all cases reported were 60. The percentage of TB cases is: $10 \div 60 \times 100 = 16.6\%$. So 16.6% of all cases seen were due to TB.



- **Incidence rate** The incidence rate is a very useful measure of the frequency of new cases of a disease or disorder occurring in your community over a given period of time (usually a year, month, or a week during new outbreaks). To calculate the incidence rate for a particular disease/disorder, you need to know: the total number of new cases of that condition seen in a particular population during the period you are interested in and the total number of people in the population you are interested in, during the same period. You divide the numerator by the denominator and multiply the result by 1,000. This is the traditional way of expressing an incidence rate, as the number of new cases of the disease/disorder per 1,000 people in the population. Therefore; the incidence of TB cases in the above example is: $10 \div 8000 \times 1000 = 1.25$. Therefore the incidence of TB in a community A above in 2004 were about one in every 1000 population.
- **Analyzing public health data by person, place and time** : The distribution of a disease can be described by recording which person was affected (who), the place where the case occurred (where) and the time when it occurred (when). Information about the person affected should include their age, sex, ethnic group, religion, occupation, and marital status. Place of illness may be household, kebele or woreda. Time of illness can be recorded as a day, week, month or year
- **Comparing data in different time periods**: In order to assess your progress in preventing communicable diseases and other disorders in your community, it is essential to compare the incidence rate of each condition at different times (e.g. in the present year compared to the previous year). When the incidence of a disease has increased compared to the previous figure, it may indicate an epidemic, so you should immediately report it to the Health Center and/or District Health Office. It is also important to describe the distribution of cases by age, sex and place of residence.



4.3. Reporting activities timely :After you have analyzed and interpreted your public health surveillance data, you should prepare a report and send it to your supervisor at the nearby Health Center. Use different reporting formats for monthly reportable, weekly reportable and immediately reportable diseases. The Health Centre or District Health Office will use your report for planning and allocation of resources, such as drugs and other Health Post supplies. They may also use the data to improve health services, assess the progress of activities of the health institutions and to control an epidemic



Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Gathering and recording data about diseases in your community is(2point)
 - A. Reporting
 - B. Analyzing public health data
 - C. interpretation of data
 - D, Data collection and recording

Note: Satisfactory rating – 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions



5.1. Introduction: In this session, we will consider the Integrated Disease Surveillance and Response (IDSR) system. IDSR involves carrying out disease surveillance activities using an integrated approach. An integrated approach means that data on all important diseases will be collected, analyzed, interpreted and reported in the same way, by the same people who normally submit routine report forms on health-related data. In this study session, we will also consider the case definitions of priority diseases in Ethiopia, and how priority diseases are reported. Proper understanding of IDSR, the case definitions and reporting methods will enable you to identify, register, analyze and report priority diseases quickly and accurately to the proper authorities. These activities are essential in order to ensure that priority diseases in your community can be prevented and controlled.

5.1.1. Importance of the Integrated Disease Surveillance and Response

(IDSR) system: IDSR brings many surveillance activities together to try and make sure that priority diseases can be controlled and prevented more effectively. The IDSR system requires that all important communicable diseases within a health facility are reported together, using the human and other resources already available within that facility. Collecting, analyzing and reporting priority diseases in this way have several advantages:

- It is cheap, since the same health personnel and reporting formats are used as are also used for routine reports of health-related data. It creates an opportunity to computerize all the available data at the central level.
- It provides training and capacity building opportunities for health personnel to develop new
- Skills. It encourages community participation to detect and respond to disease epidemics.



- Thus, IDSR is a cost-effective surveillance system which addresses the major health problems of Ethiopia. IDSR is a passive surveillance system as the data used are collected during routine health work. Active surveillance, on the other hand, uses data collected after a request from higher authorities for specific information.

5.1.2. Role of the Health Extension Practitioner in IDSR: As a Health Extension workers working and living in a community, you are likely to know the residents well. Your relationship with the community is very important and should help you in Role of the Health Extension Practitioner in IDSR As a Health Extension workers working and living in a community, you are likely to know the residents well. Your relationship with the community is very important and should help you in

- Role of Health Extension Practitioners in IDSR activities Your

Roles are to:

- ✓ Identify cases of priority diseases and conditions in the community by using case
- ✓ definitions. Report any cases or possible cases to the nearest Health Centre as soon as possible.
- ✓ Study suspected cases, identify everyone who is affected, and determine where and when
- ✓ the disease is most common. Actively search for other cases in the community by doing home visits; inform the community about cases in the area and work with community members to find more cases. Assist the District Health authorities to treat cases and to control the spread of the disease.
- ✓ Mobilize and educate the community to prevent the disease from spreading.
- ✓ Keep your community informed about the cases that have been identified and how they are being managed



5.1.4. Case definitions of priority diseases: A case definition is a set of standard criteria used to help you to separate true cases (those with the disease) from suspected cases that do not have the disease. Health workers in Hospitals and Health Centers should use standard case definitions for reporting suspected priority diseases, i.e. a definition that has been agreed and should be used by all health professionals at higher levels within the country. Standard case definitions should be applied in the same way to all the persons examined. Standard case definitions classify cases as confirmed or suspected. A confirmed case shows all the typical symptoms of a disease and the infectious agent or other cause has been positively identified in a laboratory investigation. For example, in a confirmed case of malaria, the patient shows symptoms typical of malaria, such as fever, headache and joint pain, the rapid diagnostic test (RDT) is positive, and laboratory investigation of a blood smear has confirmed that the person is infected with the Plasmodium parasites that cause malaria. On the other hand, a suspected case of malaria means that the person shows symptoms of malaria, but a laboratory investigation either has not been conducted yet, or has failed to find evidence of the parasite that causes malaria. A community case definition is a simplified version of the standard case definition, adapted to suit the needs and resources of Health Extension Workers, community health volunteers, community members, traditional healers and birth attendants. It is useful to make a poster showing these definitions for the Health Post wall in the local language.

5.1.5. Reporting of priority diseases : Complete and reliable reporting of surveillance data throughout the country is vitally important, so that program managers, surveillance officers and other health care staff can use the information for action.

- Immediately reportable diseases: Of the 20 priority diseases, thirteen must be reported immediately to the next reporting level.



- For these immediately reportable diseases, a single suspected case could signal the outbreak of an epidemic, so it is important to report any cases or suspected cases to the next level of the reporting hierarchy within 30 minutes. This means you should report cases to the nearest Health Centre within 30 minutes, the Health Centre reports to the District Health Office within 30 minutes, and so on up to the highest national Level. When you encounter a case of an immediately reportable disease, first report the information verbally or by telephone, or by sending a text using the SMS short message service. An official written report using the modified case based reporting format should follow immediately after the verbal report. You should remember to record the affected person's address, age, sex, vaccination status and symptoms. You should also suggest a possible diagnosis that is, which of the 13 immediately reportable diseases you suspect. The date of referral and your signature should also be on the reporting form. After completing the form, you should immediately send the patient to the Health Centre and check by telephone to confirm the arrival of the patient at the Health Centre
- Weekly reportable diseases: Currently, seven diseases and conditions are identified to be reported weekly to the next reporting level. Reports should include the total number of cases and any deaths seen during the week. Reports should be sent to the Health Center every Monday, using the weekly reporting format. In this format, you are expected to record the name of the disease, as well as the age and sex of the patient, and the place where the case was diagnosed (Health Post or community). For suspected cases of malaria, the laboratory result based on the Rapid Diagnostic Test (RDT) should also be recorded



Information Sheet-6	Epidemic Investigation and Management
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- 6.1. Outbreak and an epidemic: If there is an increase in cases of a disease compared with the expected number, but it lasts for only a short time, or it occurs only in a limited area, the rise may be referred to as an outbreak. Epidemic is also an excess of cases compared with the number expected; however, an epidemic is more general than an outbreak, the increase in the number of cases continues for longer (possibly months or even years), and the cases are distributed across a wider area. Malaria is the major vector-borne disease that causes epidemics in the months of June, September and October in Ethiopia. This is when the conditions are humid and warm enough and there are plentiful water collections for the vector mosquitoes to breed in
- 6.2. Types of epidemics: Epidemics are classified into different types according to the source of infection and modes of transmission. The two main modes of transmission of communicable diseases; direct modes of transmission, such as from mother to child, or from faecally contaminated hands into the mouth; and indirect modes of transmission, such as through vectors, contaminated air, water, food or objects such as cooking bowls and utensils. Based on these criteria epidemics are classified into three types: common source, propagated, and mixed outbreak.
- ✓ Common source outbreaks: occur when the rise in cases of an infection occurs after a group of people all came into contact with the same unsafe source of infection (the common source), such as contaminated food or water. Example, if food prepared for students at college/University is contaminated. Many people may get illness. This kind of epidemic is called a common source outbreak.



A point source outbreak is a common source outbreak where the exposure period (e.g. the time at which the contaminated food was eaten) is short. This means that all cases who fall ill after eating the food (the common source) also have the same incubation period, i.e. the period between infection (eating the contaminated food) and the appearance of the first symptoms.

- ✓ Propagated or progressive epidemics: occur when the infection spreads from person to person. The infectious agents causing the disease pass from one host to another, either directly from person to person (e.g. via hand shaking or kissing), or indirectly via vectors (e.g. mosquitoes in the case of malaria), or in water, food or another medium. The distribution of malaria cases is a good example of a propagated epidemic, because increased numbers of malaria cases occur again and again at different times. Propagated epidemics last longer than the common source outbreaks. This is because malaria will continue to spread in the community, as long as mosquitoes are present in the environment and there are people who carry the parasite. Can you think of any epidemic-prone diseases that spread quickly in overcrowded conditions where there is poor sanitation and personal hygiene? You may have thought of typhoid fever, cholera, shigellosis (bacterial dysentery), louse-borne relapsing fever and typhus.
- ✓ Mixed epidemics: show characteristics of both common source and propagated epidemics. So a mixed epidemic can start with a common source and be followed by a propagated spread. Mixed epidemics are often caused by food borne infectious agents. The organism that causes typhoid (*Salmonella typhi*) can survive in sewage for 14 days and in water for up to seven days. Water polluted by fecal matter is therefore the main source of infection for typhoid. If the whole community drinks water from the same water source, which has been contaminated with *Salmonella typhi*, there will be a common source outbreak of typhoid fever.



- ✓ The epidemic may continue to spread through fecal matter passing from person to person, if the people in the affected community do not improve their standards of personal hygiene, or if the water is not treated and made safe to drink. This type of spread of typhoid is called a propagated epidemic of typhoid.

- 6.3. Epidemic investigation: is a set of procedures used to identify the cause, i.e. the infectious agent, responsible for the disease. It is also used to identify the people affected, the circumstances and mode of spread of the disease, and other relevant factors involved in propagating the epidemic. This is especially important if the epidemic has unusual features, if it presents a significant threat to public health, and it is not self-limiting. Epidemic investigation is a challenging task for health workers. The main purpose of epidemic investigation is to control the spread of the disease before it causes more deaths and illness. As Health Extension workers, the first action you should take is to confirm the existence of an epidemic. To do this, you need to know the average number of cases of that disease during this specific month in your community in previous years, so you can compare that number with the current number of cases. Are there an excess number of cases or deaths from this disease compared to the usual occurrence? If there really are excess cases, you should report your findings to the District Health Office immediately.
- 6.4. Management of epidemics: Epidemic management activities include taking appropriate control measures, such as treating those who are ill to reduce the reservoir of infection, and providing health education to limit the transmission of the disease to others. Health professionals at higher levels will require your help in putting into operation any measures needed to control the spread of the disease, such as giving drugs to people in the community and providing health education. As mentioned above, you may be involved in the management of an epidemic once it is confirmed by the health authorities. The type of control measures you need to implement depend on the type of infectious agent, how the disease is transmitted, and any other factors contributing to the disease.



- 6.5. Generally, your control measures should target the infectious agent, the source of any infection, and the treatment of those who became ill. If it is caused by contaminated water, you should educate them not to drink the water until it is treated with chlorine. If mosquito breeding sites are the source of a malaria epidemic, you will need to teach the community to clear the breeding sites for mosquitoes. Teaching community members about preparing food safely can prevent an epidemic of food borne infection.



Self-Check -6	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. If food prepared for students at college/University is contaminated and Many people may get illness. This kind of epidemic is called(2point)
- A/ a common source outbreak. B. Mixed epidemics
- C. Propagated epidemics D.progressive epidemics

Note: Satisfactory rating – 2 points

Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions



Operation Sheet-1	Techniques of epidemic investigation
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1.1.Steps in an epidemic investigation

Step 1: Establish the existence of an outbreak

Step 2: Verify the diagnosis or causes.

Step 3: Define and identify cases:

Step 4: Perform descriptive epidemiology, i.e. collect data on the age, sex, etc. of the cases and analyze the data to see if useful patterns emerge.

Step 5: Develop hypotheses to explain the occurrence of the epidemic: Evaluate the hypotheses and reconsider/refine the hypotheses.

Step 6: Carry out additional studies to confirm or reject the explanations for the epidemic: Additional epidemiological studies and other types of studies, e.g. laboratory tests, environmental investigations.

Step 7: Implement control and prevention measures.

Step 8: Communicate findings to higher levels in the health system, community leaders and other local stakeholders



LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within --- hour.

Task 1-perform epidemic investigation



List of Reference Materials

1. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
2. <http://www.dpd.cdc.gov/dpdx/HTML/Ascariasis.htm>)
3. (<http://www.dpd.cdc.gov/dpdx/HTML/Hookworm.htm>)
4. WHO, UNICEF, USAID; UPDATE ON HIV TREATMENT June 2013: RESULTS, IMPACT AND OPPORTUNITIES
5. WHO, Antiretroviral therapy for HIV infection in infants and children: towards universal access, 2010 revision
6. FHI, USAID, HIV/AIDS Prevention and Care in Resource-Constrained Settings, 2001.
7. FMOH, Report on progress towards implementation of the UN Declaration of Commitment on HIV/AIDS, March 2010
8. FMOH, Guidelines for Prevention of Mother-to-Child Transmission of HIV In Ethiopia, July 2007
9. WHO; ANTIRETROVIRAL THERAPY FOR HIV INFECTION IN ADULTS AND ADOLESCENTS: Recommendations for a public health approach, 2006 revision
10. FMOH, Guidelines for cotrimoxazole prophylaxis in HIV/AIDS care and treatment, 2006
11. FMOH, Guidelines for HIV Counselling and Testing in Ethiopia, July 2007
12. FMOH, Paediatric HIV/AIDS Care and Treatment Guidelines in Ethiopia, July 2007
13. WHO; Use of Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants, April 2012
14. WHO, Guidelines on HIV testing, March 2007
15. Ethiopian Health and Nutrition Research Institute, Public Health Emergency
16. Management Guidelines for Ethiopia Feb. 2012
17. FMOH, INFECTION PREVENTION GUIDELINES for Healthcare Facilities in Ethiopia, Addis Ababa, JULY 2004
18. WHO, Standard precautions in health care facility, 2007

