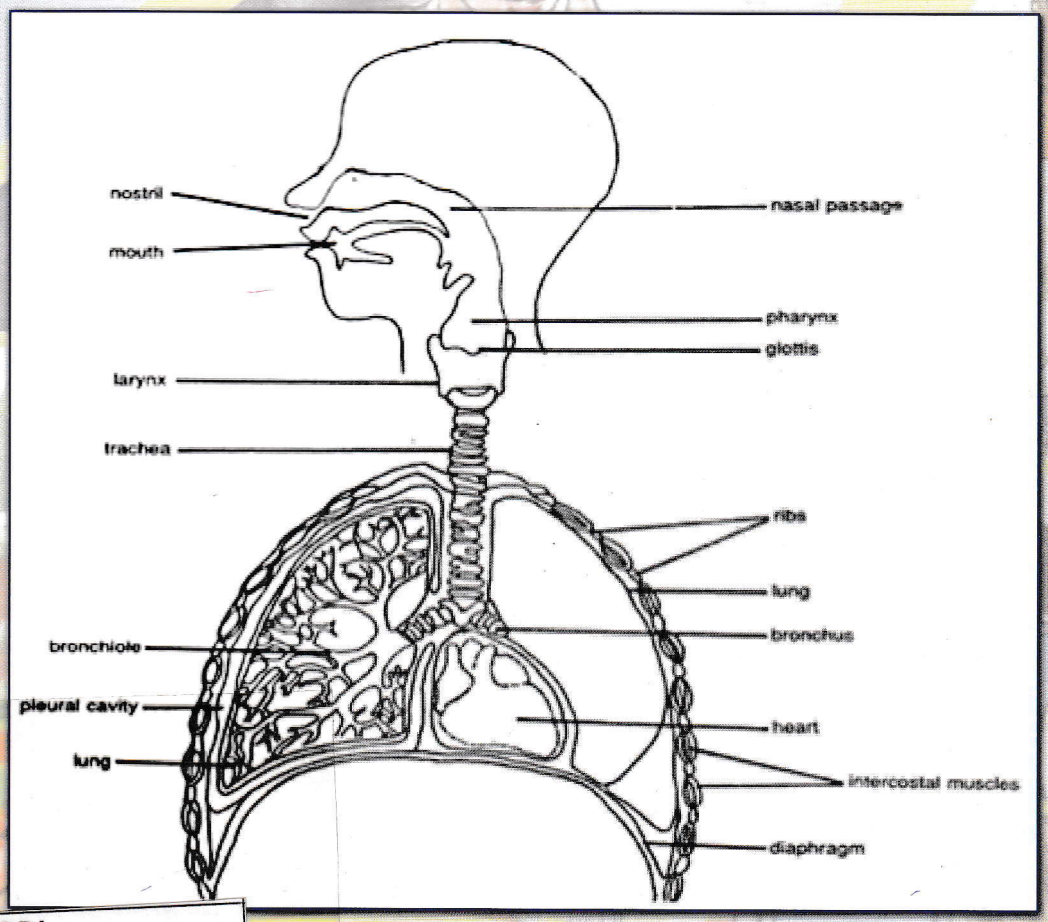
IPPE

INTEGRATED POST PRIMARY EDUCATION PROGRAMME

BIOLOGY FOR STAGE II

MODULE 2

Applying Principles of Health



Institute of Adult Education
Integrated Post Primary Education Programme

MODULE 2

BIOLOGY II

Applying Principles of Health

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Institute of Adult Education
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Contents

About this Module

BIOLOGY IIBiology module 2 on Applying Principles of Health has been produced by Institute of Adult Education. All Modules produced by Institute of Adult Education are structured in the same way, as outlined below.

How this Module is structured

The course overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- If the course is suitable for you,
- What you already need to know,
- What you can expect from the course,
- How much time you will need to invest to complete the course.

The overview also provides guidance on:

- Study skills,
- Where to get help,
- Unit assignments and assessments,
- Activity icons,
- Units.

We strongly recommend that you read the overview *carefully* before starting your study.

The course content

The course is broken down into units. Each unit comprises:

- An introduction to the unit content,
- Unit outcomes,
- New terminologies,
- Core content of the unit with variety of learning activities,

- A Unit reflection,
- Unit assignments.

Resources

For those interested in learning more on this subject, we provide you with a list of additional resources at the end of this module; these may be books, articles or web sites.

Your comments

After completing module two, we would appreciate it if you could take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- Course content and structure,
- Course reading materials and resources,
- Course Unit assignments,
- Course assessments,
- Course duration,
- Course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.

Module overview

Welcome to this module

Dear learner, welcome to module II which is about applying principles of health. This module comprises two units. Unit one deals with Personal Hygiene and Good Manners and unit two deals with Health and Prevention of Diseases. I hope you will also find this module interesting and enjoyable.

General competence

By the end of this module, you should be able to:-

- Demonstrate understanding and ability to perform various activities that ensures applying principles of health.

Study skills

As an out of school learner your approach to learning will be different to that from your school days: you will choose what you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic responsibilities.

Essentially, you will be taking control of your learning environment. As a result, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to learn about essay planning, coping with examinations and using the web as a learning tools.

Your most significant considerations will be *time* and *space* i.e. the time you dedicate to your learning and the environment in which you engage in that learning.

We recommend that you take time now—before starting your self-study—to familiarize yourself with these issues. There are a number of excellent materials on the web. A few suggested links are:

- http://www.how-to-study.com/

The "How to study" web site is dedicated to study skills resources. You will find links to study preparation (a list of nine essentials for a good study place), taking notes, strategies for reading text books, using reference sources, test anxiety.

- http://www.ucc.vt.edu/stdysk/stdyhlp.html

This is the web site of the Virginia Tech, Division of Student Affairs. You will find links to time scheduling (including a "where does time go?" link), a study skill checklist, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis, memory skills ("remembering").

- http://www.howtostudy.org/resources.php

Another "How to study" web site with useful links to time management, efficient reading, questioning/listening/observing skills, getting the most out of doing ("hands-on" learning), memory building, tips for staying motivated, developing a learning plan.

The above links are our suggestions to start with on your way. At the time of writing these web links were active. If you want to look for more go to www.google.com and type "self-study basics", "self-study tips", "self-study skills" or similar.

Need help?

Dear learner, in the course of your study, you may need help in various issues such as the location and how to get support from resource centres, clarification of various issues pertaining to your study materials (modules) and so on. If this happens, you are advised to ask for the help from your centre coordinator or facilitator, you can also visit the website of the Institute of Adult Education which is www.iae.ac.tz or ask for help by using phone no +255 22 2150838.

Module assessment

After each unit, you will be required to attempt one unit assignment. These are not meant for submission rather for reflection on what you have learned in the whole module. You will also be given tests and assignments for submission as you will be guided by your module facilitator. You will also sit for mock examinations to accomplish your continuous assessment.

Getting around this Module

Margin icons

While working through this module you will notice the frequent use of margin icons. These icons serve to "signpost" a particular piece of text, a new task or change in activity; they have been included to help you to find your way around this module.

A complete icon set is shown below. We suggest that you familiarize yourself with the icons and their meanings before starting your study.

 Activity	 Assessment	 Unit assignment	 Case study
 Discussion	 Group activity	 Help	 Note it!
 Outcomes	 Reading	 Reflection	 Study skills
 Reflection	 Terminology	 Time	 Tip
 Computer-Based Learning	 Audio	 Video	 Feedback
 Objectives	 Basic Competence	 Answers to Assessments	

Unit 1

Personal Hygiene and Good Manners

Introduction

As stated earlier, in this unit, you will learn about personal hygiene and good manners, but before you proceed look at the following dialogue.

Neema: Hey Juma, why do you buy such a good handkerchief?

Juma: I have flu, and at the same time I'm travelling.

Neema: What is the connection between your handkerchief and travelling?

Juma: It will help me to cover my mouth and nose during coughing and running nose.

Neema: To cover your mouth and nose?

Juma: Yes it is good manners. It is healthy to do so. You can transmit or dispose germs to other people in the bus.

Neema: You must have tissues and small plastic bag to put used tissues.

Juma: Thank you I will buy them before departure.

Neema: Good journey but don't forget to dispose it safely.

Juma: May I give you this pamphlet? This will help you to know much about health and good manners.

Learning Outcome

Upon completion of this unit you should be able to:

- Develop awareness of personal hygiene and good manners.

Personal Hygiene and Good Manners

Dear learner, let us go back home, it is time for lunch. Can you tell me the steps you should take before eating? OK, it is simple; everybody should first wash hands. The action of washing hands

before eating makes people maintain their personal hygiene and good manners.

Concept of Personal Hygiene

Dear learner, we know generally that good healthy is a result of eating balanced diet, clean body and good living environment. So when we talk about personal hygiene it means how you attend to your personal appearance which involve keeping the whole body clean, maintain good health, having a smart appearance and taking care of personal belongings. The practice of keeping your body and environment clean is referred to as **hygiene.**

Hence, we can define personal hygiene as a general body cleanliness of an individual. It is a good behaviour for everyone to observe the principles of personal hygiene.

Discussion

Stay a week without washing your body, clothes and brushing your teeth. How do you feel? Is there any smell detected? If yes, is the smell good or bad? Explain. To answer these questions share your experiences with your friends,

Then read on the principles of personal hygiene as given in the next discussion.

Principles of personal hygiene

In order for everyone to have a good healthy one must observe the following principles.

- Maintain a clean body and clear surrounding
- Carryout regular body exercises such as running
- Carry out recreational activities such as matching football.
- Rest and sleep after working and playing
- Take a balance diet
- Eat quality food that is prepared under hygienic conditions.
- Get medical care when sick

- Go for regular body check-up even when not sick.

Cleanliness is observed through various activities as summarised in table 1.

Table 1: Applying principles of health

Activity	Equipment
Washing hands after visiting toilets	Water, soap, disinfectant, e.g., dettol soap.
Washing hands before and after eating.	Water, soap, disinfectant.
Brushing teeth.	Tooth brush and tooth paste, e.g., Colgate.
Bathing or taking shower	Water, soap, towel, bucket.
Shaving both hair and beard	Pair of scissors, razor blade or shaving machine.
Combing of hair or platting in case of females.	Combs.
Cutting nails.	Razor blade, knife; nail cutter.
Washing ones clothes and ironing them.	Water, soap, pegs, bucket, tope and iron.
Putting on shoes	Shoes.

Importance of personal hygiene

Dear learner, it is important as stated in the previous part for everybody to practice the principles of Personal Hygiene, because it will help one to:

- Prevents diseases.
- Eliminate bad odours/personal comfort.
- Makes one socially free, this is because if you are smart, clean and well dressed you will also give a good impression to those around you and you will feel better in yourself too.

Ways of maintaining personal hygiene during puberty

How can you maintain personal hygiene?

Dear learner, what are the changes that occur between the age of 12

and 14 for boys, and 11 to 13 for girls? Can you name the period? Do you know what they should do to keep their bodies clean? As human grows from childhood to puberty, he undergoes different physiological changes. During this period the body produces more sweat, boys have wet dreams and girls have menstrual discharge. For these reasons, it is important for adolescents to maintain high level of cleanliness to avoid body odour. They need to observe the following principles;

- Girls to pay special attention on good hygiene during menstruation period like making use of sanitary pads and taking bath or shower regularly.
- Eating balanced diet which contains carbohydrates, proteins, fats/oil, fruits, vegetables and mineral salt.
- Doing exercises.
- Shaving pubic and armpit hairs (and beards in case of boys).
- Boys to take bath/shower daily. Taking bath regularly to avoid odours due to physical activities and wet dreams in boys.

Dear learner, I hope now you understand all about personal hygiene and you are in a position to maintain your personal hygiene and educate your friends on the importance of personal hygiene. Conduct a group discussion on the following:

Discussion

1. Who do you think society will like most, the one who maintains personal hygiene or the one who does not care? Explain.
2. There is a slogan that says "clean body reflects clean mind". According to your experience do you agree or disagree? Discuss

After answering these questions, I hope you can now proceed with another discussion which deals with the concept of good manners.

Concept of Good Manners

Dear learner, displaying good manners is behaving in a way that is accepted by the majority in society. I believe, you have experienced and practiced good manners in your society you live. Suppose you pass or meet a person who is older than you and have laggage or bag at her/his hand, what should you do? Give reasons.

For better living in our society, everybody should exercise behaviours that are accepted by other members. Hence, good

manners refer to those socially constructed behaviours that are commonly acceptable in a society.

A person demonstrates good behaviours in her/his daily activities. Manners are observed during verbal communication, in writing, working, eating and work activities. Norms for good manners vary according to sex, age, tribe and home. Greetings and respecting each other are examples of good manners.

Study your society; observe the acceptable and non- acceptable behaviours. Then, record all behaviours according to their groups. Compare with those given below.

Ways of demonstrating good manners

Good manners are demonstrated by doing the following:

- Communication with people should be done politely and one should express gratitude when something good is done to her/him.
- Listening and paying attention to people without interruption.
- Working together/cooperation in work.
- Covering the mouth while sneezing, yawning or coughing.
- Good manners are also demonstrated during eating, standing, walking and sitting.

Good manners are influenced with many factors; can you mention some of them? If yes, congratulation, but remember as our children grow need to be taught different ways of demonstrating good manners. This is because; manners are instilled in an individual from childhood and also parents and society become major players in up-bringing children by giving them the right information or education.

Factors affecting development of good manners in children

The following factors may affect the development of good manners in children:-

Family size and resources

Families be small or large with limited resources may fail to be good role models to their children. In large sized families with limited resources their children may grow without education or role

models to imitate.

Living environment

Children may be exposed to people possessing different characters for imitation. Small families promote friendship between parents and children.

Time availability of parents/caretakers

For effective caring, parents/caretakers need to act as role models and avail time for education.

Good manners and gender

- Socio-cultural beliefs have values and practices that have a tendency of discriminating the sex. Sex is a tendency of being either a male or female.
- Some behaviours are considered good when displayed by men. For example in most societies, smoking is normal for men but not women. This encourages men to smoke and later on affect their health and life as a whole. It is normal for a man to pay bride price to a woman but not the other way round.

Importance of good manners

It is very important for everyone in the society to practice good manners because:

- It brings harmony and good relationship in society.
- It reduces chances of spreading communicable diseases.
- It brings respect among the people.
- It enhances cooperation among people in a society.

Before proceeding further, reflect on what you have learnt in this unit.

Unit reflection

After the completion of this unit, reflect on the following:

1. Which part was the most interesting to you in this unit? Why?
2. What difficulties did you face when learning this unit? How did you overcome those difficulties?
3. Which part of the unit do you think need to be improved? Give

reasons.

Unit assignment

Do the following questions, and remember to keep your work in your portfolio.

1. What actions should be taken to ensure that personal hygiene is practiced and maintained?

2. Outline factors which affect good manner in the society.

3. State eight characteristics of a person with good manners.

4. You have finished learning this unit of personal hygiene and good manners. How would you help the society overcoming problems originating from bad behaviour like spiting along the road, coughing and yawing openly in the buses and crowded street?

Unit 2

Health and Preventing of Diseases

Introduction

Dear learner I hope you have enjoyed reading personal hygiene and good manners in unit 1, welcome now to unit 2 which is about health and preventing of diseases.

It is a good practice to eat fruits, green vegetables and drinking boiled water. These will make sure that our bodies are not attacked by diseases. Grass must be slashed around our houses to destroy breeding sites for mosquitoes and hiding places for rats. All these can transmit diseases to man. Good environment and good house provide suitable living places. In this unit, you are going to learn about health and diseases. Relax, get prepared to read and enjoy this wonderful lesson.

Learning Outcomes

Upon completion of this unit you should be able to:

- Describe the concept of health and immunity correctly and precisely.
- Demonstrate appropriate preventive measures and precaution against infections and other related health problems.
- Develop positive attitude on the concept of HIV/AIDS, its impact to individual, family/society and the nation as well as the management of health related problems.

Health and Prevention of Diseases

The Concept of Health

Dear learner, the human body is like a machine. It needs to be in good condition so that body parts work well. All activities that human being perform in their daily life need good health. For example, learning and playing require a healthy body.

What brings good health?

Can you tell us things that bring good health? What are they and how?

Good health can be brought by the following;

- Food which provides us with essential nutrients for body development and growth.
- Environment which affects our health. We need a clean and safe environment to ensure fresh air, parasites free and disease agents free. A good environment reduces chances for accidents.
- Social services like games and sports grounds for entertainment to refresh minds, clinics and hospitals for treatment whenever we fall sick.

The definition of health

Therefore, *Health is a state of complete physical, mental and social well being of an individual and not merely the absence of disease and infirmity (WHO)*. It is clear from this definition that health is a result of various factors such as food, fresh air, exercise, relaxation and many others.

Let us now discuss the components of health.

Components of Health

Physical health

This is a state of functioning of the human body and ability to do work, e.g., learning, dancing, cooking, singing and swimming.

The proper functioning of cells, tissues, organs and systems of the body is considered to be an indicator of good physical health.

If there is no harmony of cells, tissues and organs the person feels bad and this is an ill-physical health. This may be due to injury, undernourishment and body abuse. All these can be prevented or adjusted by personal hygiene, regular body exercises, balanced diet and good practice. However, permanent damage like blindness and deafness need medical attention.

Mental health

Observe any person with mental problems in your society, how does this person act on different things? How does this person interact with others? Why?

Reasoning is more effective if the body is healthy, thinking and acting correctly, depend on how the mental ability was developed and maintained. Mental health enables us to interact with others and share the good and bad side of life. A mentally healthy person can interact with others easily. There is a good link between mental health and relationship with people.

Social health

This, expresses the way a person acts and fits in the society, e.g., village, school, in group members and religious centres.

Social health enables a person to interact and share with others and be accepted in the society such as in villages, schools and religious centres.

Social health deals with the general behaviour of a person, it varies with sex, age, society and religion. To fit in a society, is to act according to norms or customs of that society, e.g., hard working.

People with bad behaviour like sodomy, rape, bullying, harassing (girls/young boys), excessive alcohol drinking, and smoking do not fit in the society (school, village) and are unacceptable.

Generally, a person is said to be in good health if she/he is physically, mentally and socially healthy.

Good health is the condition of feeling well, happy and free from diseases/illness. Good health enables a person to participate fully in studies, sports, and social activities. Minor diseases never attack a person with good health or it is easy to overcome them.

Dear learner, I hope you are now familiar with the concept of good health, but bear in mind that health person can sometimes be attacked by some diseases. What do you think this person lacks? Probably you can guess but for more clarification join in our discussion that follows.

Concept of Immunity

After learning all about good health now is time to learn natural way of a body to resist Protect it from being attacked by diseases. The ability of an organism to resist infection from antigens is termed *Immunity*.

Immunity and its Types

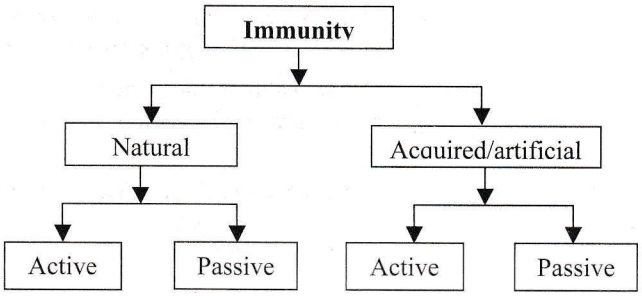

Figure 1: Types of immunity in summary

There are two main types of immunity.

- Natural immunity
- Artificial immunity.

Natural Immunity

This kind of immunity is also known as **innate,** that which an individual is born with; a permanent immunity which does not involve antibodies. A person has this immunity without being infected or immunized.

Natural immunity is divided into two parts, namely;

Natural active immunity

The immunity which develops after a natural infection i.e. when the body manufactures its own antibodies when exposed to an infectious agent (germ). This kind of immunity occurs in adults and lasts (persists) for a long time, sometimes even for life.

Natural passive immunity or acquired immunity

This type of immunity is found only in foetus and young babies where the antibodies from the mother pass to the foetus through the placenta or to the baby through the **colostrums** (the first milk). This immunity disappears from the infant after a period of 3 to 9 months after birth.

Artificial Immunity

This is the kind of immunity an individual acquires from somewhere else. It is also known as acquired immunity. It provides immediate protection against infection.

Artificial active immunity

It is the immunity introduced in the body by immunization.

Artificial passive immunity

It is the immunity produced by inoculating serum from another person or from a mammal which has antibodies against the disease(s).

Importance of immunity in good health

Immunity provides protection to the body against foreign substances such as pathogens/germs or microbes, which are collectively known as antigens.

Antigen is any substance from whatever sources which stimulates the production of antibodies. It is any substance that causes the body to make antibodies.

Factors affecting body immunity

The following are factors which can affect the body immunity:-

- Destruction of immune system by pathogens e.g. HIV-Human Immunodeficiency Virus (HIV),
- Lack of balanced diet,
- Inhibitory effects of drugs and chemicals to the white blood cells,
- Failure of the body to produce antibodies and white blood cells, and
- Lack of vaccination/immunization.

Immunization

This is the process of introducing vaccine into the body of an animal in order to increase the ability of the body to produce

antibodies.

Ways of immunization

- Injecting the vaccine into the body tissues.
- Taking the vaccine through the mouth/oral intake.

Vaccines

Is a liquid containing dead, weakened/attenuated antigens or toxoids. It is prepared for prevention of diseases caused by antigens or toxins/poisons. The vaccine stimulates the body to produce antibodies against a particular disease.

Types of vaccine

There are three types of vaccines

- Toxins
- Live vaccines (attenuated/weakened organisms.)
- Dead/ killed organisms' vaccine.

Toxins

These are vaccines extracted, from toxins/poison produced by bacteria or pathogens. These extracts are made harmless by adding formaldehyde to them. When they are introduced into the body; they stimulate the lymphocytes to produce **antibodies**.

Antibodies are chemicals produced by the body itself in order to protect it against diseases/infections. These chemicals protect the body by helping to destroying pathogens and neutralizing their toxins.

Live vaccines (attenuated/weakened organism)

Are vaccines containing living pathogens which have been attenuated/ weakened and therefore less virulent.

Dead/killed organisms' vaccine

Some dead viruses and bacteria stimulate the lymphocytes to produce antibodies, e.g., dead viruses for small pox, measles.

Vaccination

This is the process of injecting a vaccine into a healthy body to induce the lymphocytes to produce antibodies.

Table 2: Important vaccines given to children under 5 years

Type of vaccine	Method of administration
D.P.T against diphtheria, whooping, cough, tetanus.	Injection is given to children at the age of 3 months, 4 months, and 5 months for the protection purposes. This interval varies from one country to another.
Polio against infantile paralysis is administered together with D. P. T.	The child is given drops in the mouth once a month for three months.
B.C.G against tuberculosis	Children can be vaccinated at birth or anytime afterwards. This vaccine makes a sore and leaves a scar.
Measles	One injection is given to young ones of 9 to 15 months of age depending on the country.

Other examples of vaccinations rendered to people are cholera, typhoid, cowpox, smallpox, yellow fever and tetanus.

I hope you have enjoyed this part of unit. Before proceeding further, do the following exercise. Remember to put your answers in your portfolio.

1. It was observed that most of people at your ward do not know why mothers send children who are under five years old to health clinic. Basing on what you have learnt from this part of the unit, help them by giving the meaning of the following terms to them:
   (i) Immunity
   (ii) Immunization
   (iii) Disease.
2. List two types of immunity and their examples.
3. Mention four important vaccines given to children under five.

Infections and Diseases

Dear learner, I hope you have come across with a sick person if not yourself. How did you feel? Probably your body was weak and you couldn't do your work properly. The cause of the sickness was the infection of the body. So in this lesson we shall discuss different types of diseases, how they are transmitted and prevented. I hope you will enjoy, welcome.

The General Concept of Infections and Diseases

Let us start our discussion by looking at the meaning of the diseases and infections.

Diseases

Disease is a condition which describes the state of health of the body. It is a condition where part or parts of the body are not functioning well/properly. Any deviation from the normal functioning of the body means not health or sickness.
Most diseases are accompanied by signs and symptoms which make a person aware that she/he is not well.

The term sign, refers to what can be seen by a doctor or another observer, for example, high blood pressure, diarrhoea, vomiting, swellings and rashes on the body are signs of a disease.

The term symptom expresses what is felt by the patient and must be described by her/him. Headaches, stomachache, nausea, are examples of symptoms.

Infections

These are diseases caused by an invasion of the body cells/tissues by organism from outside.

Communicable and non – communicable diseases

After you have learnt the meaning of disease and infection, it is now time to classify diseases. As you know from the life experience, some diseases can be passed on or transmitted from person to person.

Can you list down diseases which may spread from one person to another through body contact, water or inhaling (taking in) the air containing viruses and organism which cause those diseases?

On the other hand, some diseases cannot be transmitted from one person to another; the one who has been attacked by that disease in anyway cannot pass/transmit that disease to others.

What are the groups of diseases?

Do you know at least three examples of non-transmitted diseases? Write them if you know congratulations, because now you are becoming a biologist. However, if you are not aware about those diseases here below is the information on them.

Categories of diseases

Diseases can be categorized into two categories namely; communicable and non-communicable diseases.

Communicable diseases

These are diseases caused by harmful organisms called microbes. Such diseases can spread from one person to another. Some examples of communicable diseases are cholera, measles, influenza (flu), small pox, yellow fever, ringworms and malaria to mention a few.

Communicable diseases are generally classified according to their mode of transmission from one person to another. They may be classified as those that are transmitted by contact; through air, through food and water, through insect bite and by carriers. Communicable diseases are also classified according to the nature of the causative organisms namely; viral, bacterial, protozoan and fungal.

Non- Communicable diseases

These are diseases which cannot be transmitted from one person to another through contact or diseases causing agents.

Non-communicable diseases can be caused by:-

- Malnutrition (kwashiorkor, marasmus, obesity).
- Accidents (damage of organs or tissues).
- Drug abuse (addiction syndrome.)
- Stress factors (certain disorders of the alimentary canal e.g. ulcers, circulatory and nervous systems).
- Pollution (asthma, allergy, cancer)
- Hormonal imbalance (cretinism, goitre)
- Genetic disorders (sickle cell anaemia, haemophilia and colour-blindness).
- Old age (old age diabetes, old age sight problem, loss of

hearing and memory).

Classify the following diseases into either communicable or non-communicable ones. Cancer, diabetes mellitus, typhoid, sickle cell anaemia, kwashiorkor, bilharzias, malaria, gonorrhoea, AIDS and pneumonia

After you have been introduced to communicable and non communicable diseases, let us now group the communicable diseases on the basis of either occurrence, speed, duration or the size of the area they spread. On the basis of speed, some diseases spread very quickly while others spread slowly, other diseases affect one area continuously and still others can spread in a very big area.

What are the endemic, epidemic and pandemic diseases?

ENDEMIC DISEASES

These are communicable diseases which occur continuously in an area, e.g., malaria, bilharzias, typhoid, gonorrhoea and syphilis. Let us discuss these diseases one after another.

(i) Malaria

Malaria accounts for more deaths than any other disease caused by parasites.

Causes

Malaria is caused by a protozoan parasite called **Plasmodium sp.**

There are four species of Plasmodium.

- *Plasmodium vivax*, *Plasmodium malariae* (most dangerous), *Plasmodium falciparum* and *Plasmodium ovale.*

Transmission

The Plasmodium sp is transmitted from an infected person by *a female anopheles mosquito* to uninfected person through transfusion of infected blood from an infected person to an uninfected person. Also from mother to foetus across the placenta.

Symptoms

For a person attacked by Plasmodium sp after 8-10 days (incubation period) there is development of the following symptoms:

- Headache.
- Feeling cold.
- Shivering.

- Raising of body temperature (High fever) and sometimes sweating.
- General body weakness.
- Lack of appetite and sometimes nausea and vomiting.
- Pain in the joints of the limbs and back/vertebral column.

Effects on the host

- Become anaemic.
- Dehydration.
- Body weakness.
- Pain in joints and backbone.
- Loss of appetite.
- Death.

Prevention and control measures

- Spray light oil containing insecticide on water that cannot be drained so that it can cut off oxygen to the larvae.
- Clear bushes around the house to remove hiding places for adult mosquitoes.
- Introduce mosquito larva and pupa eaters in stagnant water e.g. fish and insects.
- Bury all containers which can hold water.
- Drain stagnant water to prevent egg laying by the female anopheles mosquito.
- Sleep under a mosquito net.
- Screen windows and doors with mosquito proof wire mesh.
- Use insecticides e.g. expel, mosquito coils to drive away mosquitoes.

Treatment

Use drugs like fansidar, metakelfin, quinine and others to kill parasites in the blood and in liver.

(ii) Typhoid

Causes

This is a bacterial disease caused by a bacterium called Salmonella typhoid.

Transmission

The disease spreads through contaminated food and water. It is expelled from the body through stool and urine. Houseflies are potential vectors for spreading typhoid.

Symptoms

- High fever and body aches
- Fatigue
- Abdominal pains
- Diarrhoea
- Vomiting.
- Constipation
- Headache
- Ulcers in intestines.

Effect on the host

- Dehydration/loss of water.
- Intestinal sores.
- Body weakness.
- Abdominal pains.

Prevention and controlling measures:

- Personal hygiene.
- Proper community sanitation and general cleanliness.
- Food should be well cooked
- Boil drinking water
- Wash hands after visiting toilets.
- Food which is not cooked e.g. fruits should be washed thoroughly.

Treatment

Typhoid is normally treated using antibiotics especially chloromphenical.

(iii) Bilharzia

Is sometimes known as schistosomiasis or snail fever.

Causes

It is caused by a small worm called schistosoma/blood fluke which lives in blood in the veins of the pelvic.

Three types of schistosoma which affect people are:-

- *Schistosoma haemotobium;* attacks mainly human urinary bladder.
- *Schistosoma japonicum;* affects the small and large intestine and other parts of human beings, domestic and wild animals.
- *Schistosoma mansoni*; affects mainly the large intestine.

Transmission

- Eggs are passed out of the body of a patient in the urine or stool. When the eggs enter water, they hatch into worms called miracidia (singular miracidium).
- These miracidia swim and find certain water snails in which they can grow.
- The miracidia leave the snails and they are now known as cercariae (singular cercariae).
- These cercarae swim in water until they find a person.
- They enter through the skin or mucous membrane of the person's mouth.
- The cercariae travel around the body and through blood stream in pelvic veins where they develop into adult schistosome worms.
- The female adults lay eggs which enter the liver from the portal vein.
- The eggs damage the liver; some eggs are carried by blood to other parts of the body, namely the lungs and nervous system where they cause damage.
- Eggs are passed out with feaces.

Life cycle of Schistosome

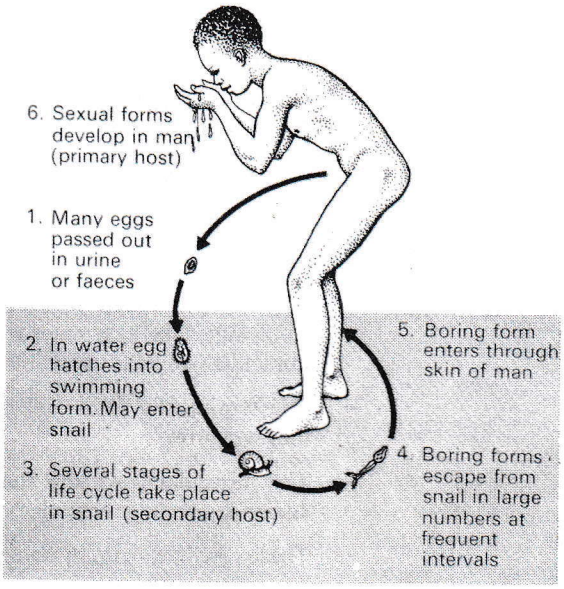

Figure 2: The life cycle of schistosome

Symptoms and signs

The incubation period is about 4-6 weeks.

- A mild skin itch and a rash develop when the cercariae enter the skin. Fever, cough and abdominal pain may develop.
- Usually blood is noticed in urine when a person has nearly finished passing urine due to damaged kidneys, urinary bladder, and urethra.
- In *Schistosoma mansoni* or *sichistosoma japonicum* blood and pus is noticed in the faeces of the patient; also the person develops diarrhoea and dysentery.
- The liver becomes large at first but later small.
- Some eggs cause damage (ulceration) to the wall of the bowel.
- The spleen becomes very large.
- The patient becomes very anaemic due to loss of blood. Fluid collects in the abdomen and in the legs a condition known as **oedema.**

Prevention and control measures

- Kill the parasite in the bodies of the host or reservoirs and treat patients using drugs.

- All people must use toilets all the time together with proper disposal of faeces, not to let it get into water.
- Eradicate the vector (the water snail) by draining stagnant water. This is the main method used.
- Avoid contact with water which has cercariae in it.
- Health education helps people to learn how to avoid being infected.
- Drain stagnant water to prevent the growth of the water snails. (vector)
- Chlorinate (add chlorine to water) domestic water before using it.

Treatment of Bilharziasis

Treat all patients so that the life cycle of the parasites is broken.

iv. Tuberculosis (TB)

Causes

TB is caused by a bacterium known as Mycobacterium tuberculosis.

Transmission

The disease is transmitted through inhaling the bacteria into the lungs (Droplet infection) especially in overcrowded and in poorly ventilated houses, unboiled milk and poorly washed contaminated utensils.

Symptoms

- Loss of appetite.
- Loss of weight.
- Excessive sweating.
- Coughing.
- Appearance of blood in sputum
- Chest pain
- Shortness of breath
- Muscle wastage lead to excessive thinness.

Effects on the host

- Loss of appetite and body weight.
- Night fever and excessive sweating.
- Inflammation and destruction of lungs followed by coughing.
- Appearance of blood in sputum.
- Chest pain and short of breath.

Prevention and control measures

- Avoid sharing of home utensils.
- Improve social conditions.
- Avoid overcrowding.
- House must have large windows to ensure good ventilation.
- Avoid unhygienic spitting (use sinks).
- Health education should be given to family or caretakers.

Treatment

- Antibiotics e.g. streptomycin, rifampicin, isonized for TB amphoterium for thrush. Treatment takes a long time since the damaged lungs take longer to recover.
- Vaccine. Children can be vaccinated at birth or any time afterwards with B. C. G.

EPIDEMIC DISEASES

These are examples of communicable diseases, which spread among many people in a particular area within a short period of time. Examples; cholera, plague, meningitis.

(i) Cholera

It is an intestinal disease that results due to intake of contaminated food/water. Cholera is an epidemic disease in most of the Third World countries/developing countries.

Causes

Cholera is caused by parasite- bacteria known as *Vibrio cholerae.*

Transmission

Cholera is both a food and water borne disease. It is therefore transmitted by faecal contaminated food and water.

Cholera is common during floods, when water supply systems break down. It is spread quickly by houseflies (vectors) and handling of faecal contaminated objects.

Flies move from humans' faeces to food/water. If contaminated food or water is taken, an individual starts to be infected by those bacteria.

Symptoms

- Severe vomiting.
- Low blood pressure as water is lost (dehydration)

- Severe diarrhoea (rice water-like).
- The Patient loses weight rapidly.
- Patient suffers from wrinkled skin and sunken eyes because of dehydration/loss of water.
- General body weakness.
- Fast and shallow breathing.

Prevention and control measures

- Food should be well cooked.
- Drinking water should be boiled.
- One should wash hands before and after eating.
- One should wash hands after visiting toilets.
- When one goes to an infected area, it is advisable to be vaccinated or taken extra care in hygiene.
- Personal hygiene should be much improved.
- Health education on causes, transmission, symptoms, effects and prevention/control of cholera is very important.

Effects on the host

- Loss of water due to severe diarrhoea and vomiting.
- Loss of mineral salts.
- Loss of weight.
- Low blood pressure.
- Death if not treated early.

Treatment

This disease is treated by antibiotics such as tetracycline.

Fluid replacement is done by a solution of sugar and pinch of salt (one teaspoonful in a cup of water).

(ii) Meningitis

This is an infection or inflammation of the meninges. Meninges are the membranes covering the brain and spinal cord.

Depending on the root cause of the disease, there are three types of meningitis:

- Bacterial meningitis.
- Tuberculosis meningitis.
- Viral meningitis.

Bacterial meningitis

Causes

This is caused by a bacterium known as Preumococcus.

Transmission

- Common potential sources of meningitis infection are infected people.
- Pathogens are spread through droplet from infected people.

Symptoms

- Nausea,
- Vomiting,
- Headache,
- High fever and back pains.

Tuberculosis meningitis

This is caused by a tuberculosis bacterium, which invades the meninges.

Viral meningitis

Causes

This is caused by one of the most common viruses. This virus infects the meninges.

Prevention

- Patients suffering from the disease should be treated while isolated from uninfected people.
- Overcrowding should be avoided.
- Houses should be well ventilated by having large windows.

Effects on the host

- Damage of brain,
- Restlessness and
- Mental confusion.

Treatment

Early treatment is necessary especially for bacterial meningitis which responds well to antibiotics. It is treated by using antibiotics e.g. chloromphenical and genetically engineered vaccine.

(iii) Plague

Causes

Plague is a bacterial disease caused by a bacillus bacterium called *Pesturella pestis.*

Transmission

The disease causing bacteria are carried by fleas from rats to human. Fleas suck blood from uninfected people, after sucking blood it introduces saliva to the site in order to prevent blood clotting. The saliva is the one which contains parasites causing infections. Bacteria are also present in sputum and other body discharges of infected people. The disease is very infectious and spreads rapidly killing many people within few days.

Symptoms

Infected people develop a high fever and the lymphatic system is affected. This causes lymph nodes located in arm-pits and groin to swell.

The patient starts shivering and sometimes vomits. If medical treatment is not given death follows within five days.

Sometimes the germs infect lungs causing pneumonic plague and blood appears in the sputum. This condition is very dangerous as the germs can be spread to uninfected people when the infected person sneezes or coughs. People infected with pneumonic plague die within two days.

Effects on the host

Swelling of lymph nodes in armpits and groin.
Damage of lungs.
Dehydration.

Prevention

The spread of plague can be prevented by the following ways:

- Vaccination against plague.
- Killing rats by trapping, poisoning and keeping cats.
- Clearing rat breeding bushes around our surroundings and keeping them away by any means.
- Avoiding crowded places and isolating infected people.
- Handling body discharges of infected people very carefully.
- Having well ventilated houses.

Treatment

Immediate hospitalization is required and the patients are kept under medical observation. Penicillin based drugs are used and patients are given a liquid diet.

PANDEMIC DISEASES

These are diseases which can affect the people in a big area such as the whole country, continent or even the world. A good example of pandemic diseases is the Acquired immunodeficiency syndrome (AIDS) which is caused by Human Immunodeficiency Virus (HIV). AIDS affects all societies all over the world.

You exactly know that almost at every corner of our region, country, continent or the world there are people who have been affected by this disease. If not well checked out, the birds' flue (SARS) is going to be one of the dangerous pandemic disease.

Before proceeding further, complete the activity below.

In our daily life, as human being we can get diseases, or infections, but prevention is better than "cure". From what you have learnt in this part.

Activity

1. Write down any two ways on how malaria, bilharzias and plague can be prevented.
2. It was observed that in a cultural ceremony where people were crowded, one member showed meningitis symptoms.

   (i)How meningitis is transmitted from infected people to uninfected people.

   (ii) Write down how people can be prevented from getting the infection.
3. If you are sick and you went to the doctor for further check up then the doctor realizes that you are infected with a certain disease.

   (i) What is the meaning of infectious disease?

   (ii) From what you have learnt, briefly, explain how infectious diseases are transmitted?
4. (a) what do you understand by the terms:

   (i) Communicable diseases

   (ii) Non-communicable diseases

   (iii) Pandemic diseases

(iv) Endemic diseases

b) From the following information try to separate communicable and non-communicable diseases. Cholera, measles, asthma, kwashiorkor, marasmus, yellow fever, small pox and cancer.

Dear learner, in the beginning of this unit, you learnt about the general concepts of health, immunity and its types. You also learnt about communicable and non-communicable diseases specially, the discussion was mainly focused on groups of communicable diseases such as endemic, epidemic and pandemic diseases. Now let us familiarize with the knowledge of Sexually Transmitted Infections (STIs) and Sexually Transmitted Diseases (STDs) as part of communicable diseases.

Sexually Transmitted Infections and Sexually Transmitted Diseases

The General Concept of STIs and STDs

STIs and STDs are communicable or non-communicable diseases. If you seriously and effectively covered the previous parts of this module, there is no doubt to mention that STIs and STDs are communicable diseases. All infections/diseases which are transmitted from one person to another through sexual intercourse/contact belong to this category. However, after learning these diseases you will come to realize that some of STIs and STDs are not purely transmitted through sexual intercourse blood transfusion and sharing skin piercing tools. For more information read notes below on STIs and STDs. These are infections/diseases passed from one person to another during sexual contact. STIs/STDs can be caused by either viruses or bacteria.

Examples of STIs/STDs caused by bacteria are gonorrhoea (clap) and syphilis.

Examples of STIs/STDs caused by viruses are herpes and HIV/AIDS.

Gonorrhoea (clap)

Gonorrhoea is a venereal disease that affects reproductive system in both males and females.

Causes

The disease is caused by a gonococcus bacterium known as *Neisseria gonorrhoeae* which can be passed from an infected

person to uninfected ones.

Symptoms

In man

- Pain or difficulty with urination/burning feeling on passing urine:
- Drops of pus from the lip of penis
- Sometimes, there is a painful swelling of the testicles.
- Rashes or sores all over the body.

NB: It may cause sterility (failure to impregnate a woman).

In Woman

- Pain in the lower abdomen
- Menstrual problems
- May become sterile if untreated.
- Urinary problems
- Yellow discharge from the vagina.

Transmission

Gonorrhoea can be transmitted in many ways. The most common method is through sexual intercourse.

In infants the infection occurs around the eyes during birth if the mother suffers from the disease. It can also infect the throat if infected genitalia are kissed/sucked.

Effects on the host

If not treated, gonorrhoea leads to heart disease, blindness and sterility.

Prevention

A gonorrhea victim can be treated by using antibiotics such as Tetracycline, Ampicillin, Penicillin.

Syphilis

This is a venereal disease which is more dangerous than gonorrhoea.

Causes

Syphilis is caused by spiral shaped bacterium known as *Treponema pallidum*.

Transmission

It can be transmitted through direct sexual contact from an infected person to an uninfected partner. Syphilis can also be transmitted from mother to child. The bacterium passes through the **placenta**. The baby, who is infected through this way, can become mentally retarded and dies at an early age.

Sharing of towels can also transmit.

Symptoms

Symptoms of syphilis are in three stages.

First stage

- Characterized by a single sore in male normally is at the tip of the penis.
- It occurs 2-4 weeks after infection.
- The sore is not painful and may disappear after few weeks. This can bring false hope that the disease is cured.

Second stage

- The victim develops rashes on the body on palm, soles and the forehand.
- Ulcers may develop in the mouth and throat where later these symptoms disappear if not treated.

Third stage

It affects the circulatory and nervous system and can lead to paralysis and death.

Effects

- Sterility, blindness, paralysis, death if not treated early.

Prevention and controls measures

Avoid irresponsible sexual behaviours.

Treatment

Syphilis can be treated by antibiotics, Tetracycline, Ampicillin, Penicillin chloromphenical.

HIV/AIDS

Dear learner, it is now time to share some information with you on AIDS. I believe this term is not totally new to you. You hear it over the radio, television, from people and through reading text books, newspapers, magazines and advertisements which are now scattered all over the country.

AIDS is spreading quickly and its major route of transmission is through sexual intercourse between the healthy person and the victim. This disease can be prevented but so far there is no cure for it. Once you are affected by HIV/AIDS there is no way to get back to your normal health. However, there are some drugs which can be taken to prolong your life.

It is now the time for you to relax and then effectively read information below on HIV/AIDS. I believe after reading it you will

be in a good position to keep yourself safe from being infected by HIV/AIDS

On the other hand, if you are infected or one of your family members is affected, you will acquire a lot of knowledge on how to care for such people.

Meaning of HIV

HIV is a short form of the virus known as Human Immunodeficiency Virus. This virus destroys the human body's immunity. It prevents the body from manufacturing antibodies which fight against pathogens that invade our bodies. This virus prefers the body fluids such as semen, blood, and vaginal fluid. It lives inside the T4 lymphocytes (helper cells) of the white blood cells.

AIDS

AIDS is a short form of the word, *Acquired Immuno Deficiency Syndrome* (Symptoms of a number of diseases).

It is a pandemic disease which affects all societies throughout the world. HIV prevents immune system to work. The human body (which now has no immunity) becomes susceptible by a number of disease causing germs. Example; fungi, and bacteria.

Causes

HIV/AIDS is caused by HIV virus, a retrovirus (RNA virus).

Transmission

Is a blood borne disease/infects (saliva), sweat and other body fluids containing HIV.

- Can be transmitted by infected semen to a partner through sores in anus, vagina, or mouth of her/his partner during sexual intercourse in both homosexual and heterosexuals.
- Contaminated instruments like needles, razor blades, knives, tooth brush can also transmit the disease if shared.
- Transfusion of one's infected blood to uninfected person.
- From mother to baby. An infected pregnant woman can pass on the virus to her baby through the placenta, at birth or through breast milk during suckling.
- The use of drugs and drug abuse may lead into HIV/AIDS transmission.
- Having multiple partners. Anal and oral sex also speed up the transmission.

Symptoms

- Skin cancer (kaposi's sarcoma)
- Recurrent shingles (herpes zoster)
- Prolonged fevers (more than a month).

- Increased susceptibility to a range of diseases due to lack olymphocytes which produce antibodies/immunity.

Effect on the host

- Syndrome of diseases due to lack of immunity.
- Dehydration/loss of water.
- Loss of weight
- Deterioration/failure of functioning of organs e.g. eyes, ears.
- Loss of appetite
- Cancers e. g skin; lung.
- Oral thrush.
- Recurrent shingles (herpes zoster)
- Generalized swollen lymph nodes in the armpits groin and neck.
- Skin rashes, cancer, kaposis sarcoma.
- General body weakness.

In children:

- Loss of weight/abnormal slow growth/negative growth
- Chronic diarrhoea
- Prolonged fever.

Prevention and control measures

- ***Education:***
  Ignorance is the agent of most problems especially those associated with health. As such provision of health and sex education to all, will reduce chances to further transmission. The youth and all social groups must be enlightened on the risk of acquiring the virus through careless lifestyle.
- The use of condoms (both males and females.) is 90-95% effective i.e. very low risk if used appropriately.
- **Abstinence**: It is voluntary refraining from sexual intercourse. This method is very important to children, students and adults.
- **Observe fidelity**: staying with one singly checked and faithful partner. Avoid anal sex and multiple partners. Use only tested blood and blood products even in small volumes. Avoid transfusion of HIV unscreened blood.
  Use disposable sterilized needles and syringe, and Avoid sharing of sharp instruments like syringes, needles, razor blades, knives.
- Avoid commercial sex, prostitution and promiscuous sex partners, homosexual and rape acts.
- Practice responsible behaviour. Avoid risk behaviour and risk situation.

Treatment

There is no treatment for HIV / AIDS
Treatment is only limited to relieving symptoms.

Risk situation to people with no HIV/AIDS

When HIV/AIDS can spread easily?

After you have learnt about the risk situation to HIV/AIDS, let us now open out the behaviours which can put you in danger. Consider an example where your body health is good and you are able to work properly and effectively, which risk behaviours can destroy your health? With no doubt you know that smoking, drinking alcohol and other drug abuse as well as not practicing safe sexual behaviour, are some of the risk behaviours which can affect your health. Let us share information on risk behaviours by reading the notes given below.

Risk situation refers to a situation where uninfected people can be infected with HIV. Alcohol consumption reduces the power of a person to control herself/himself. One can accept or do things such as sex with anyone or even be raped.
Bad company (peer groups):- Peer pressure is to do what others do i.e. mob psychology.
Lack of knowledge
Blood transfusion with infected blood
Natural curiosity and sex desire.

Risk Behaviours

Risk behaviours originates from voluntary choice where one accepts a certain habit which provides pleasure and does not stop doing it.
Risk behaviour is a habit that puts someone in a dangerous or harmful situation.

Examples of risk behaviours are: smoking cigarettes, drinking alcohol, sexual intercourse with an infected partner, anal intercourse with an infected partner, oral sex and sexual intercourse with multiple sex partners or someone who had multiple sex partners.

Care and support for people living with HIV/AIDS (PLWHA)

Infected people have equal opportunities like those not infected. It is our responsibility to give them support, food, treatment and other social services. Failure to give them support is to discriminate them. We have to show tolerance, love, and provide them with their rights i.e. we have to express compassion.

Compassion is simply that sense to care and recognize people as human beings with equal demands.

Compassion results in empathy rather than sympathy.

In empathy; the problem is "ours." In sympathy, the problem is "theirs"; so we just feel sorry for them with little or no help at all.

Effect of stigma and discrimination

Stigma arises as people leaving with HIV themselves feel guilty and fail to count themselves. On the other hand, the society fails to recognize them and count them dead. While discrimination is treating a person or groups of people differently.

Effects of discrimination

There is great danger of discrimination. It reduces one's life span due to lack of treatment which is considered as wastage of money or no provision of food. The victims become scared and harsh. Those infected, can intentionally spread HIV by being sex free.

Committing suicide may be the best solution of being discriminated to some victims.

Importance of caring and supporting PLWHA

- Gives them hope for longer life.
- Reduces stress and inferiority complex.
- Feels to be part of the society (socialization).
- They will be in a good position to plan for the future of their children.

Precautions when carrying and supporting PLWHA

Great care must be taken when handling an HIV person. HIV lives in all body fluids: - Blood, semen, sweat, urine and saliva.

- Make sure that you have no sores.
- Use gloves especially at advanced stages.
- Avoid sharing of things like, needless, pins, razor blades etc.
- Take them to hospital in case of any illness. They must be treated early due to immune problems.

NB: All must be done in such a way that the victim is not stigmatized (isolated). Love them but be careful.
Before proceeding further, complete the following exercise.

Unit reflection

After the completion of this unit, reflect on the following:

1. Do you think this unit is important to you? Give reasons.
2. Which part in this unit is difficult to you?
3. Suggest the ways in which this unit can be learned so that you understand easily.
4. Do you think this unit needs some improvement? Give reasons.

Unit assignment

Do the following questions and put your work in your portfolio

1. Having gained knowledge on diseases, plan and write a short summary on how you would educate your fellows on HIV/AIDS using the following headings:

   a) Causes of HIV/AIDS
   b) Mode of transmitting HIV/AIDS
   c) Effects of HIV/AIDS to the infected people.
   d) Control measures of HIV/AIDS.
   e) Care of HIV/ AIDS Victims
2. By using the guidelines given below, write an essay on typhoid.

   a) Causes of typhoid
   b) Mode of transmission
   c) Symptoms and signs
   d) Cure of disease.
3. a) Explain the meaning of immunity.

   b) List and explain factors affecting body immunity.
   c) Outline at least five vaccines which are administered to children under 5 years.
4. Briefly, explain how HIV/AIDS is related to opportunistic diseases such as Tuberculosis (T.B) and skin cancers.

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