



Solution LAQ - 1

Human beings live in societies. Our social environment therefore plays an important role in our individual health. In villages, towns or cities, our physical environment is decided by our social environment. For example - if there are heaps of garbage and trash littered here and there, or if there is open drain water lying stagnant around where we live, the possibility of poor health increases. So, public cleanliness is an important contribution to an individual's health.

Some other community issues that influence health are:

1. Community issues like child marriage can affect the health of the girl the baby born to an underage girl.
2. Lack of education of the community to sex related issues can also cause sexually transmitted diseases.
3. Bad treatment with the underprivileged sections of the society can also cause mental problems.
4. Social equality and harmonious relationships among our population are necessary for the individual health. Thus, we see that there is an overlap of personal and community issues for health.

Solution LAQ - 2

Infectious diseases spread from one infected person to other normal person by various methods.

(a) Air-borne diseases - For example: common cold, pneumonia and tuberculosis. Such disease causing microbes are spread throughout the air. The transmission of these microbes occurs through the little droplets coughed out by an infected person who sneezes or coughs. A person in the vicinity of such a person can inhale these disease causing microbes and may become infected.

(b) Water-borne diseases - For example: Cholera, Infectious diseases can also spread through water. These occur when a stool from someone suffering from an infectious gut disease, such as cholera or amoebiasis, gets mixed with the drinking water used by people living nearby. The cholera-infested bacteria can enter new hosts through the water they drink and can cause disease in them.

(c) Sexually-transmitted diseases - For example: Syphilis and AIDS. Both of these pathogens are transmitted by sexual contact from one partner to the other. However, such sexually transmitted diseases are not spread by casual physical contact.

(e) Formite borne diseases - Articles coming in contact with the patients act as sources of infection. For example: door handles, taps, garments, utensils, crockery, etc.

(f) Spread of disease through vectors - Many animals which live with us may carry diseases. These animals can transfer infecting agents from a sick person to another potential host. Thus, these animals act as intermediaries or vectors. For example - female Anopheles mosquitos are vectors of disease, malaria.

Solution LAQ - 3

General ways of preventing infection are:

Public hygiene is one basic key to the prevention of infectious diseases.

In the method of prevention of diseases, following practices are adopted:

- (i) To avoid exposure to air-borne microbes, adopt living conditions that are not overcrowded.
- (ii) To prevent exposure to water-borne microbes, safe drinking water should be provided.
- (iii) To avoid vector-borne infections, we can provide clean environment as it would not allow mosquito breeding.

Solution LAQ - 4

Principle of Treatment:

There are two ways to treat an infectious disease. One is to reduce the effects of the disease and the other way is to kill the cause of the disease. For the first requirement, we can provide treatments that will reduce the symptoms. The symptoms are usually a result of inflammation. For example, we can take medicines that bring down fever, reduce pain or loose motions. We can take bed rest so that we can conserve our energy.

However such a kind of symptom-directed treatment by itself is inadequate. Since it will not make the pathogen go away, so the disease will not be cured. For that we have to kill the microbe itself.

Solution LAQ - 5

(a) AIDS - AIDS stands for Acquired Immuno Deficiency Syndrome. It is a fatal disease. The disease of AIDS is caused by retrovirus (a RNA virus) known as Human Immunodeficiency Virus (HIV). AIDS virus attacks white blood cells (WBCs) or lymphocytes of human beings and weakens the human body's immunity or self-defence mechanism.

Some important symptoms of AIDS are: Swollen lymph nodes, regular fever, sweating at night and weight loss. Its virus also cause severe damage to brain and may lead to loss of memory, ability to speak and of clear thinking.

(b) Malaria - Malaria is caused by a protozoan parasite Plasmodium. This disease spreads through the bite of an insect vector - the female Anopheles mosquito which feeds on human blood. Male Anopheles mosquito feeds upon plant juice. Main symptoms of malaria include headache, nausea, muscular pain and high fever. Malarial attack consists of three stages:

- (i) Cold stage, feeling of extreme cold and shivers.
- (ii) Hot stage, high fever, faster respiration and heart beat.
- (iii) Sweating stage, due to profuse sweating, temperature of the body goes down to normal.

Solution LAQ - 6

Few diseases caused by bacteria are:

(i) Tuberculosis (T.B.) - T.B. is an infectious disease which is communicated from one person to another directly or indirectly. It is caused by the bacterium called Mycobacterium tuberculosis. T.B. can affect all parts of the body such as lungs, lymph glands, bones, intestine etc.

(ii) Cholera - Cholera is an acutely infectious, fatal disease and is more common during overcrowded fairs, festivals and after floods. Cholera is caused by the bacterium Vibrio Cholerae. It is transmitted by flies, contaminated water and food.

(iii) Typhoid - Typhoid is most common communicable disease in India. Typhoid fever is common in humans of the age 1 to 15 years age group. Typhoid is caused by a rod-shaped and motile bacterium, called Salmonella typhi which is commonly found in the intestine of human beings. Human infection is direct.

(iv) Diarrhoea - Diarrhoea is an abnormally frequent discharge of semisolid or fluid faeces. The diarrhoea spreads through infection by contaminated food, water, drinks, hands, clothes, etc. The causative agents of diarrhoea are mainly bacteria such as Escherichia coli, Clostridium botulinum, Shigella dysenteriae, Campylobacter jejuni and Salmonella.

Solution LAQ - 7

Important viral diseases of human beings are:

(i) Influenza - Influenza is commonly called flu. It is caused by an influenza virus (Myxovirus influenza). There exist three types of

influenza viruses - A, B and C. A and B types of influenza viruses are important because these are responsible for causing of disease epidemics throughout the world. The inhaled virus attacks the epithelial cells in the mucous membrane of nose, throat and upper respiratory tract. Influenza is spread mainly from person to person contact and by droplet infection via sneezing, coughing and talking.

(ii) Jaundice - Jaundice or hepatitis is the disease of liver. Since liver is a very important organ in the body, so its inflammation due to jaundice affects digestion adversely. Jaundice is caused by viral infection. The types of hepatitis are: Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D, Hepatitis E or Hepatitis G. Except for type B which is a DNA virus, all the other are RNA viruses. Hepatitis is spread mostly by food and water contaminated with hepatitis virus.

(iii) AIDS - AIDS stands for Acquired Immuno Deficiency Syndrome. It is a fatal disease. The disease of AIDS is caused by retrovirus (a RNA virus) known as Human Immunodeficiency Virus (HIV). AIDS virus attacks white blood cells (WBCs) or lymphocytes of human beings and weakens the human body's immunity or self-defence mechanism. AIDS becomes prone to many other infections or diseases.

(iv) Polio - Poliomyelitis or polio is a disease of the nervous system caused by one of the smallest known virus, called polio virus. The virus enters the body through the food and water and reaches the intestine and from there it enters the CNS or central nervous system via blood stream and lymphatic systems. Children between the age of 6 months to 3 years are most prone to polio infection. Polio is transmitted among children by the faeco-oral route and through the direct contact, dirty hands, contaminated food or milk and flies.

Solution LAQ - 8

(a) Tuberculosis - T.B. is an infectious disease which is communicated from one person to another directly or indirectly. It is caused by the bacterium called *Mycobacterium tuberculosis*. T.B. can affect all parts of the body such as lungs, lymph glands, bones, intestine etc. The incubation period of T.B. includes a few weeks to a few years.

The patient of tuberculosis feels sick and weak. There is a loss of appetite and weight. Typical fever pattern and night sweats are also common.

(b) Polio - Poliomyelitis or polio is a disease of the nervous system caused by one of the smallest known virus, called polio virus. The virus enters the body through the food and water and reaches the intestine and from there it enters the CNS or central nervous system via blood stream and lymphatic systems. Children between the age of 6 months to 3 years are most prone to polio infection. Polio is transmitted among children by the faeco-oral route and through the direct contact, dirty hands, contaminated food or milk and flies. The early symptoms of the polio disease are sore throat and headache.

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