HANDOUT 2/3

Class - IX Subject - Science

Chapter 13 – Why do we fall ill?

MEANS OF SPREAD 0F DISEASE

Infectious diseases spread from an infected person to a healthy person through air, water, food,vectors, physical contact and sexual contact.

i) Through air :- Common cold, Tuberculosis, Pneumonia etc.

ii) Through water :- Cholera, Amoebic dysentry etc.

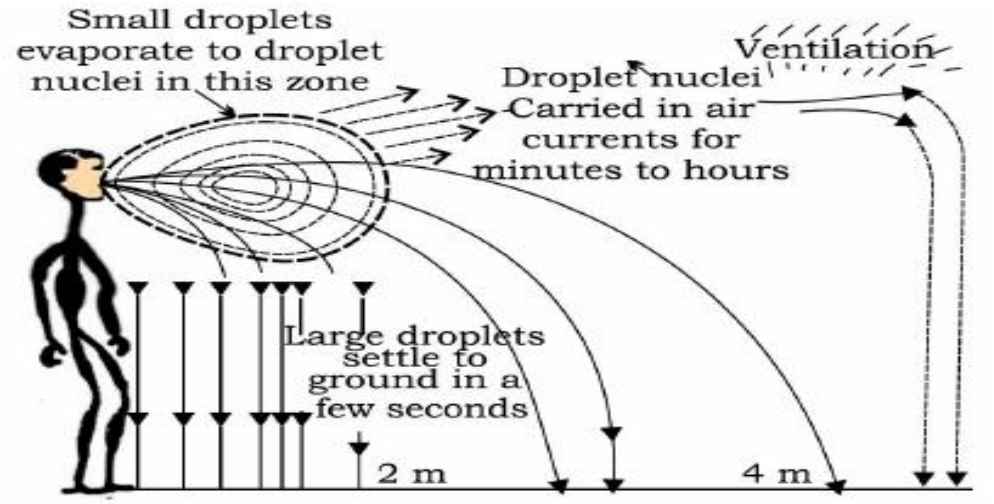
iii) Through vectors :- Mosquitoes :- Malaria, Dengue, Yellow fever etc.

Flies :- Typhoid,Tuberculosis, Diarrhoea, Dysentry etc.

iv) Through sexual contact :- Syphilis, AIDS.

AIDS virus can also spread though blood transfusion and from the mother to her child during pregnancy and through breast feeding.

The below figure shows how **Air-transmitted** diseases are easier to catch the closer we are to the infected person. However, in closed areas, the droplet nuclei recirculate and pose a risk to everybody. Overcrowded and poorly ventilated housing is therefore a major factor in the spread of airborne diseases.



Disease can also be spread **through water**. This occurs if the excreta from someone sufferingfrom an infectious gut gets mixed with water. Eg cholera, gets mixed with the drinking waterused by people living near by. The cholera causing microbes will enter new hosts through thewater they drink and cause disease in them. Such diseases are much more likely to spread inthe absence of safe supplies of drinking water

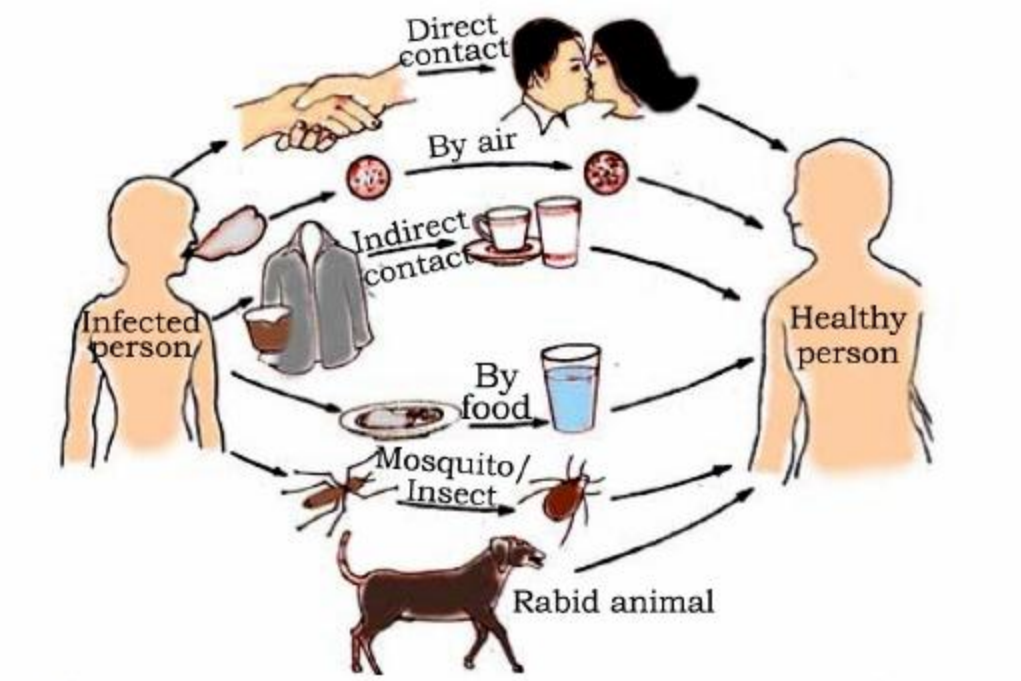


Fig. *Common methods of transmission of diseases.*

The sexual act is one of the closest physical contacts two people can have with each other. Not surprisingly, there are microbial diseases such as syphilis or AIDS that are transmitted by sexual contact from one partner to the other.

However, such sexually transmitted diseases are not spread by casual physical contact. Casual physical contacts include handshakes or hugs or sports, like wrestling, or by any of the other ways in which we touch each other socially.

Other than the sexual contact, the AIDS virus can also spread through blood to blood contact with infected people or from an infected mother to her baby during pregnancy or through breast feeding.

Diseases	**Medium**
Tuberculosis, pneumonia, diphtheria, influenza, measles and common cold	Air
Cholera, typhoid, dysentery and diarrhoea	Food, water
Leprosy, ringworm and scabies	Skin contact
Malaria, filarial and plague	Insects

ORGAN-SPECIFIC AND TISSUE-SPECIFIC MANIFESTATIONS

Disease causing microbes enter the body by different means and goes to different organs andtissues.

1. Microbes which enters through the nose are likely to go to the lungs.
   (Bacteria which cause **tuberculosis of lungs**).
2. Microbes which enter through the mouth are likely to stay in the **gut**
   (Bacteria which causes Typhoid) or **liver** (Bacteria which causes Jaundice).

3. Virus which causes AIDS enter the body through sexual organs during sexual contact and spreads through the **lymph** to all parts of the body and damages the immune system.
4. Malaria-causing microbes, entering through a mosquito bite, will go to the **liver**, and then to the **red blood cells**.
5. The virus causing Japanese encephalitis, or **brain fever**, will similarly enter through a mosquito bite goes and infects the brain.

In addition to these tissue-specific effects of infectious disease, there will be other commoneffects too. Most of these common effects depend on the fact that the body's immune system isactivated in response to infection.

An active immune system recruits many cells to the affected tissue to kill off the disease-causing microbes. This recruitment process is called inflammation.

As a part of this process, there are local effects such as swelling and pain, andgeneral effects such as fever.

If the number of microbes is very small, the diseasemanifestations may be minor or unnoticed.

But if the number is of the same microbe large,the disease can be severe enough to be life- threatening.

The immune system is a majorfactor that determines the number of microbes surviving in the body.