
Transmission of Zoonoses

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Transmission cycles

- **Sylvatic cycle.**

- propagates among wild animals.
 - hunters and forest rangers or domestic animals stray
- e.g. Kyasanur forest disease, Monkey pox

- **Synanthropic cycle.**

- The pathogens occur and propagate in domestic animals via synanthropic animals like rodents, birds and lizards
 - Man is often exposed to zoonotic diseases propagating in the synanthropic cycle.
- e.g. Plague, Tularemia

- **Human cycle.**

- man to man cycle and can also pass from man to animals
- e.g. Human tuberculosis
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Modes of Transmission

1. Direct

- **Direct contact.** - direct contact between the source of infection and the susceptible host.
e.g. Leptospirosis, Pox, Dermatophytosis.
 - **Droplet infection:** sneezing, coughing or talking.
e.g. Tuberculosis, common cold, Diphtheria.
 - **Contact with soil.**
e.g. Hookworm infection, tetanus.
 - **Bite of an animal.**
e.g. Rabies.
 - **Transplacental / vertical transmission** from mother to offspring.
e.g. Toxoplasmosis, Salmonella
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2. Indirect

A. Vector-borne transmission.

- **Mechanical transmission.**

- infectious agent is mechanically transmitted
- no development or multiplication of an infectious agent on or within the vector.

e.g. Amoebiasis, Cholera.

- **Biological transmission.**

- infectious agent undergoes growth and multiplication in vector
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Biological transmission.

(i) Propagative type.

The agent merely multiplies in the vector, but does grow.

e.g. Plague bacilli in rat fleas.

(ii) Cyclo-propagative type.

The agent undergoes both growth and multiplication in the vector.

e.g. Malaria parasites in mosquitoes.

(iii) Cyclo-developmental type.

The agent undergoes only development but no multiplication.

e.g. Microfilaria in mosquitoes.

(iv) Transovarian type.

The agent is transmitted from one generation to other.

e.g. Tick borne encephalitis.

B. Vehicle-borne transmission.

- Transmission of an infectious agent through either water, food, blood, serum and other biological products such as tissues and organs.
- Transmitted mechanically or biologically

e.g. Water - Hepatitis A virus,

Meat - Salmonellosis , *Trichinella spiralis*,

Milk - Tuberculosis, brucellosis,

Fish - *Diphyllobothrium latum*, *Vibrio parahaemolyticus*,

Blood - Hepatitis B virus,

Organ - Cytomegalo virus in kidney transplants

C. Air borne transmission

■ Droplet nuclei.

- minute particles formed either by evaporation of cough or in laboratory, slaughterhouse or autopsy room.
- remain air borne for long period of time and may be disseminated by air currents to different places.

e.g. Tuberculosis, Q-fever.

■ Dust.

- larger droplets which are expelled during talking, coughing or sneezing
- settle down along with dust and cause air-borne transmission.

e.g. Streptococcal infection, fungal spores.

D. Fomite-borne infections.

Fomites include soil, clothes, towels, cups, glasses, spoons, door handles, lavatory chains etc.

e.g. Diphtheria, typhoid fever, skin infections.

E. Unclean hands and fingers.

most common mode of transmission

e.g. Staphylococcosis and streptococcosis, Salmonellosis, Colibacillosis.
