

DISEASE TRANSMISSION

1. Communicability-ability of a disease to spread from infective to susceptible hosts

2. Period of Communicability

Time during which an infectious agent may be transferred directly/indirectly from an infected person to animal, including arthropods

Important measure of communicability is Secondary Attack Rate

Infectivity-Ability of infectious agent to invade & multiply in a

host

Infectivity = number of infected /
number of exposed

Pathogenicity = number of diseased / no.
Of infected

CLASSIFICATION OF DISEASE TRANSMISSION

DIRECT TRANSMISSION

- Direct contact
- Skin to skin contact
- STD, AIDS, Leprosy
- Most common route of Nosocomial/hospital acquired infection is through direct

contact

- Hospital acquired infection of surgical wound is mostly by instruments
- Nosocomial infection- develops after 48 hours of hospitalization

• DROPLET INFECTION

- Direct projection of spray of droplets of saliva & nasopharyngeal secretions during coughing / sneezing
- Pertussis (Whooping cough), tuberculosis
- Contact with soil - Hookworm, tetanus
- Inoculation into skin or mucosa- Rabies virus by dog bite, Hepatitis

B

- Transplacental (vertical)- TORCH agents (Toxoplasma. gondi, Rubella virus, Cytomegalovirus & Herpes virus)

INDIRECT TRANSMISSION

• 1. VEHICLE BORN

- Transmission of Infectious agent through the agency of water, food, blood, tissue & organs

- Disease transmitted by water & food- typhoid fever, cholera & hepatitis A

- Transmitted by blood include- hepatitis B, malaria & syphilis

- Organ transplantation- cytomegalovirus in kidney

transplants

- VECTOR BORNE

- A. By Vector

- Invertebrate type

- Vertebrate type
- B. By transmission chain

- Man & non vertebrate host > Man-arthropod-man (malaria)

- Man, vertebrate host & non vertebrate host > Mammal-arthropod-man (plague)

- Man & 2 intermediate hosts > Man-snail-fish man (clonorchis sinensis)

- C. By methods in which vectors transmit

agents

- Biting
- Regurgitation
- Scratching in of infective faeces
- Contamination of host with body fluids of vectors
- D. By methods in which vectors are involved in the transmission & propagation of parasites
- Types of transmissions in Arthropod Borne Diseases
 - 1. Direct contact > Transferred from man to man close contact Scabies
 - 2. Mechanical transmission • Agent is

transferred mechanically by the arthropod typhoid/trachoma by house fly

- 3. Biological transmission

- When disease agent multiplies or undergoes some developmental change with or without multiplication in arthropod host it is called biological transmission

- i. Cyclo-developmental > Disease agent undergoes cyclical changes but does not multiply in the body of the arthropod

- E.g. guineaworm embryo in Cyclops & filarial parasite in Culex mosquito

- ii. Propagative

- Disease agent multiplies in the body of

vector but does not undergo any cyclical changes

- E.g. plague bacilli in rat fleas & yellow fever virus in Aedes mosquito

- iii. Cyclo-Propagative

- Disease agent undergoes cyclical changes & multiplies in the body of arthropod

- E.g. malaria parasite in anopheles mosquito

- Transovarial transmission (vertical transmission)

- female vector passes the infectious agent through her eggs to the next generation O E.g. rickettsia rickettsii in

ticks

- transstadial transmission
- Agent transmitted from nymph to adult vector
- E.g. *Borrelia burgdorferi* in ticks
- Air-borne transmission
- a. Droplet nuclei • E.g. TB, influenza, measles

asles, diphtheria, Pertussis

- B. Dust • Droplets expelled during talking, coughing or sneezing settle down on the floor, carpets, furniture, clothes, bedding & become part of the dust
- During sweeping, dusting & bed making

the dust is released into

the air & becomes once again airborne .
E.g. coccidiomycosis, streptococcal & staphylococcal infections

- Fomite-borne transmission

- Articles contaminated by infectious discharges from a patient

- Includes- soiled clothes, linen handkerchiefs, surgical dressings

- Typhoid, diphtheria, hepatitis A, bacillary dysentery, eye & skin infections

- Contamination-presence of infectious organism on body/clothing's/beds/dressings/instruments

etc

- Unclean hands & fingers- Intestinal parasites, hepatitis A, dysentery etc.
- Anthroozoonosis
- Infections transmitted from animal(zoo) to man (anthro)
- E.g. Rabies, plague, anthrax, hydrated cyst, trichinosis

s • Zooanthroposis

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- E.g. Human TB in cattle
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