



Higher Human Biology Unit 4

Key Area 3 Pupil Notes

Diseases are caused by **pathogens** e.g.

- Viruses e.g. HIV, flu, rabies
- Bacteria e.g. TB
- Fungi e.g. thrush and athlete's foot
- Protozoa e.g. malaria
- larger multi-cellular organisms e.g. hookworms

Diseases are classified into groups as follows depending on how they spread:-

- Sporadic – disease occurs occasionally
- Endemic – regular cases occur in an area **or** disease is typical of an area
- Epidemic – (unusually) high number of cases in an area
- Pandemic – global epidemic

Transmission of disease – Pathogens spread (are transmitted) as follows:-

- direct physical contact e.g. shaking hands
- indirect contact e.g. sharing cups
- bodily fluids e.g. saliva and seminal fluid (HIV)
- inhaled air breathing - microbes released by an infected person coughing (measles virus is air-borne)
- droplets in air (coughing/sneezing)
- food / water
- animal vectors e.g.
 - ✓ mosquitoes which are responsible for spreading the microbe which causes malaria
 - ✓ birds which carry the flu virus
 - ✓ bats which carry the rabies virus

The control of disease transmission

The spread of any pathogen can be controlled in one of a numbers of ways:-

- Maintaining clean water / sanitation (separating sewage and drinking water)
- Quarantine - - compulsory isolation of person suffering from a serious communicable disease (stops spread)
- Good (personal) hygiene / care in sexual health / education about hygiene
- Safe storage / handling of food
- Control of vectors e.g. Draining stagnant water, removes breeding sites

Or introducing sterile males causes infertile young and drop in population

- Vaccination or immunisation / drug therapy / antibiotic use / antiviral drugs / antiseptics / disinfectants

These control measures are either an individual's responsibility or the responsibility of the community.

Individual responsibility-

- Good hygiene, hand washing etc.
- Care in sexual health, condoms protect against STDs
- Appropriate handling and storage of food

Community Responsibility

- Filtration and chlorination of drinking water
- Food manufacturers obliged to adopt 'Good Manufacturing Practise', including inspection and traceability of food

Appropriate waste disposal help reduce the rat population (vectors)

Draining stagnant water, removes breeding sites help reduce the population of mosquitoes which are a vector for malaria

Epidemiologist - studies outbreaks of infectious diseases by studying the location of the initial outbreak, how it spreads and recommends how to control outbreaks.