

## 4. KEEPING DISEASES AWAY

### VIRUS

Structure:- Only a DNA/RNA with in a protein coat  
No cell organelles.

Action:- Multiply by undertaking genetic control of the host cell.

#### Nipah

Pathogen :- Nipah virus

Spread :- Through fruit eating bats directly or indirectly or through pigs (secondary vector)



#### AIDS

(Acquired Immuno Deficiency Syndrome)

Pathogen :- HIV

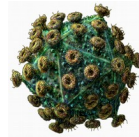
(Human Immunodeficiency Virus)

Spread: - Through body fluids.

- By sharing needle and syringe
- Through unprotected sexual contact.
- From HIV infected mother to her foetus.

Does not spread by touch, kiss, saliva, food, coughing, sneezing, insects, sharing toilets etc.

Action :- HIV multiplies using genetic mechanism of lymphocytes and hence the number of lymphocytes decreases considerably. This condition of reduced immunity, any pathogen can easily affect the body



#### Hepatitis

Pathogen:- Hepatitis virus

Spread:-Through contaminated food and water, blood components and excreta of patient.

Symptoms:- Liver inflammation, dark yellowish colour to mucus membrane, eyes or nails due to bilirubin (pigment in the bile).



## A. Communicable [Contagious] Diseases

### BACTERIUM



Structure:- Unicellular organisms with out a definite nucleus (prokaryote)

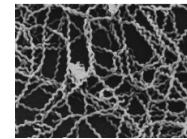
Action:- They multiply and the toxins released by metabolism kill or disrupt the living cells.

#### Ratfever (Leptospirosis)

Pathogen :- Leptospira

Spread :- Through wounds, from stagnant water and moisture.

Symptoms :- Severe fever, headache, muscle pain, redness in eyes due to internal bleeding.



#### Diphtheria

Pathogen:- Corynebacterium diphtheriae.

Spread:-Through coughs, sneeze or even directly.

Symptoms:- Fever, throat pain and inflammation in the lymph glands of the throat. Mucus membrane becomes an ash coloured thick coating in the throat.

#### Tuberculosis

Pathogen :- Mycobacterium tuberculosis.

Spread:- Through air.

Mainly affects the lungs.  
Also affect the kidneys, bone, joints, brain etc.



Symptoms :- Loss of body weight, fatigue, persistent cough.

Treatment:- Using antibiotics.

Vaccine :- BCG.

### FUNGUS



Action:- The toxins produced by them cause diseases.

\* **Ringworm** (Round, red blisters on the skin)  
- spread through contact.

\* **Athlets foot** (Reddish scaly rashes that cause itching on the sole of the foot and between the toes)  
- spread through contact with contaminated water and soil.

### PROTOZOAN

Structure :- Unicellular eukaryotes.

Action :- Their toxins destroy the cells.

A few of them destroy blood cells.

#### Malaria

Pathogen :- Plasmodium species.

Spread:- Through anopheles mosquitoes.

Symptoms :- High fever with shivering and profuse sweating are major symptoms.  
Also headache, vomiting, diarrhoea, anaemia ..

### FILARIAL WORM

#### Filariasis

Spread:- Through culex mosquitoes.

Symptoms:- Swelling in the lymph ducts due to the obstruction in the flow of lymph, by filarial worms.



## B. Non-pathogenic Diseases

### Genetic diseases

#### \* Haemophilia

Due to defect of genes, defective synthesis of one of the proteins that enables blood coagulation.

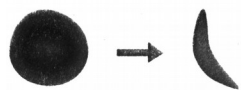
Excessive bleeding even from small wounds as blood does not clot

Temporary relief is possible by injecting the deficient protein to patient.

Patients need special care and attention.

#### \* Sick cell Anaemia (അരിവാൾരോഗം)

Due to the defect of genes, deformities occur in the sequencing of amino acids of haemoglobin, and RBCs become sickle shaped.



Oxygen carrying capacity of red blood cells decreases. Such patients will be anaemic and weaken.

These sickle celled RBCs get collected in blood vessels to block the flow of blood.

### Cancer

The condition by which uncontrolled division of cells and their spread to other tissues occur.

Reasons :- Environmental factors, smoking, radiations, viruses, hereditary factors and alterations in genetic material may lead to the transformation of normal cells into cancer cells.

Treatment :- Surgery, Chemotherapy, radiation therapy.

Early diagnosis of cancer is important in the treatment

### Life style diseases

Caused by our unhealthy living style.

(synthetic food items, fast food etc, lack of physical exercise, mental stress, bad habits like consumption of alcohol, drug abuse or smoking etc.)

**Diabetes** :- Deficiency or malfunction of insulin.

**Fatty liver** :- Deposition of excess fat in the liver.

**Stroke**:- Rupture of blood vessels or block of blood flow in brain.

**Hypertension** :- Thickening of artery wall by fat deposition.

**Heart attack** :- Block of blood flow due to fat deposition in the coronary arteries.

### Smoking related health problems

- Affect to nervous system to cause stroke, addiction to nicotine etc.
- Affect to respiratory system to cause lung cancer, bronchitis, emphysema etc.
- Affect to circulatory system to cause hypertension, loss of elasticity of arteries and decreased functioning of heart.

### Animal diseases

Bacterial diseases : **Anthrax**,  
**Inflammation of udder** (Mastitis)

Viral disease : **Foot & mouth disease**.

### Plant diseases

Bacterial diseases : **Blight** disease of paddy,  
**Wilt** disease of brinjal.

Viral disease : **Mosaic** disease in peas and tapioca,  
**Bunchy top** of banana.

Fungal diseases : **Quick wilt** in pepper,  
**Bud rot** of coconut.

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