
HUMAN HEALTH AND
DISEASES

- ✓ **Health** is a state of complete **physical, mental and social well-being.**
- ✓ **Health** is affected by **genetic disorders, infections, change in life style** (food, water, rest, exercise, habits etc).

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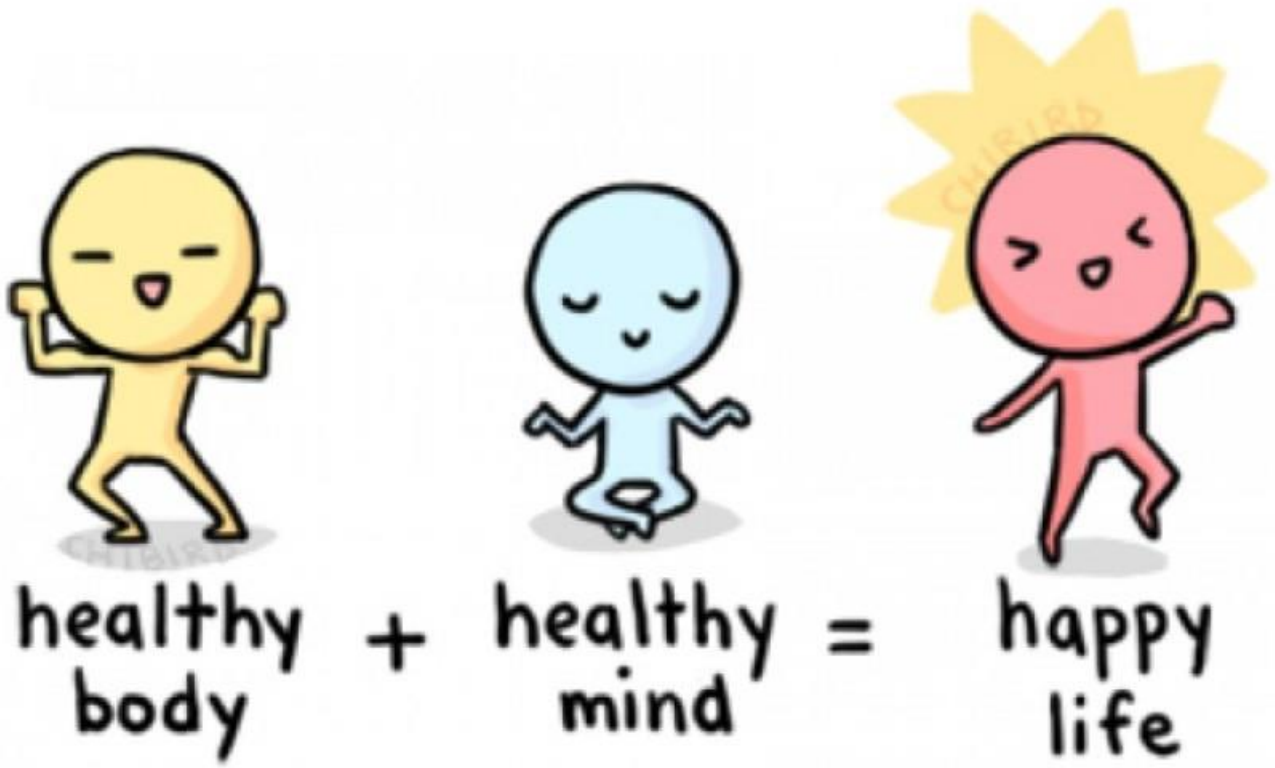
- ✓ **Mind influences immune system** (through neural and endocrine systems) and thereby health.
- ✓ When the functioning of organs or systems of the body is adversely affected, it is called a **disease.**



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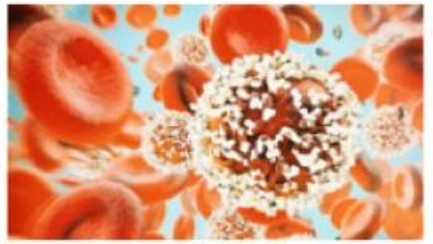
DISEASES

Infectious:

Transmits from one person to another.

Non-infectious:

Do not transmit from one person to another.



Disease causing organisms are called **Pathogens.**
Parasites are pathogens as they harm the host.

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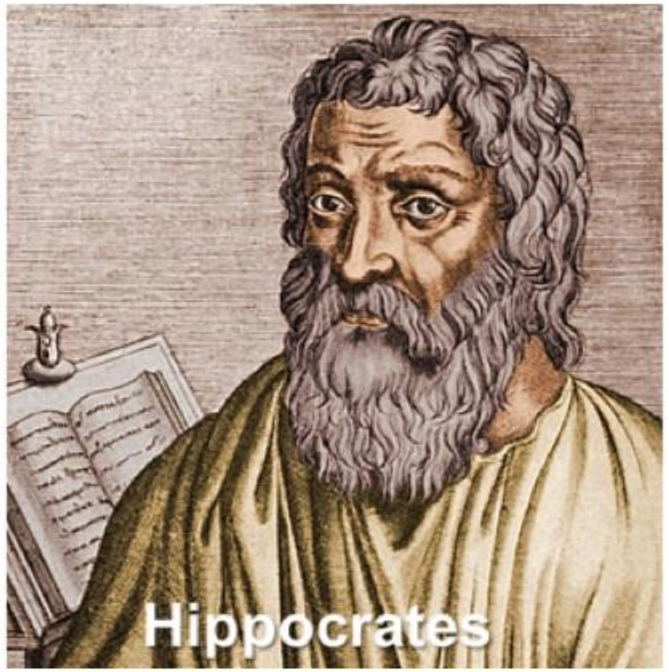
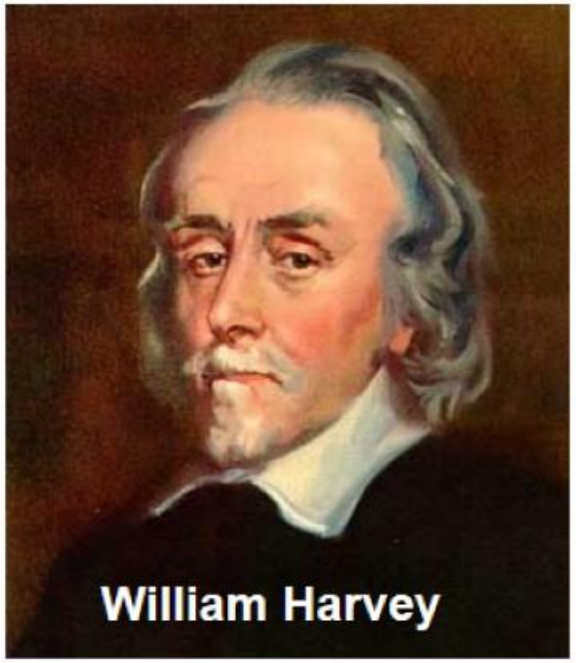
Good humour hypothesis

- Proposed by Hippocrates & Indian Ayurveda system.
- It states that health is a state of body & mind where there is a balance of certain humours. Persons with 'black bile' belong to hot personality and would have fevers.
- William Harvey disproved this hypothesis. He discovered blood circulation and demonstrated normal body temperature in persons with black bile using thermometer.



Four types of humours



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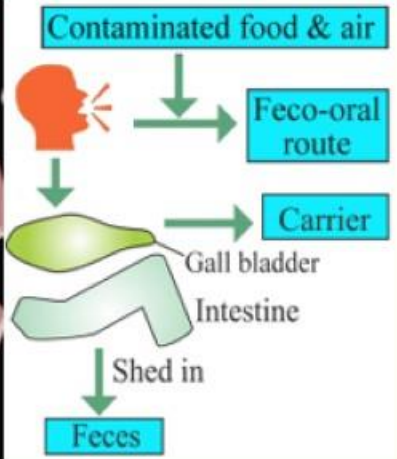
COMMON INFECTIOUS
DISEASES IN MAN

COMMON INFECTIOUS DISEASES IN MAN

BACTERIAL DISEASES

A. Typhoid

Pathogen	*Salmonella typhi*
Mode of transmission	It enters small intestine through food & water and migrates to other organs via blood.
Symptoms	Sustained high fever (39°-40° C), headache, weakness, stomach pain, constipation & loss of appetite. Intestinal perforation and death may occur.



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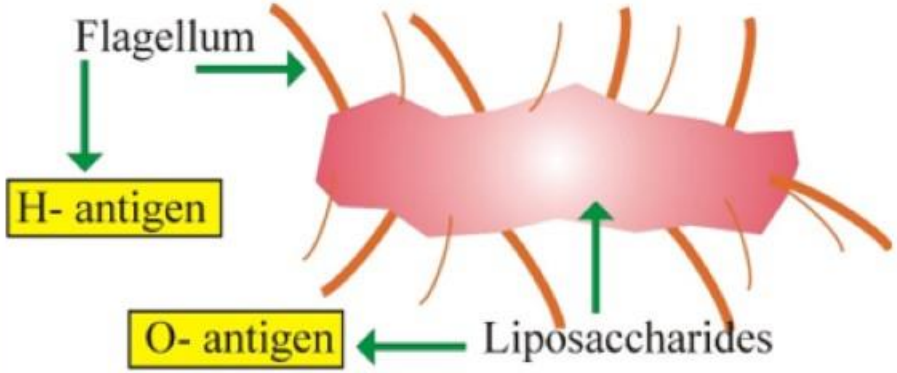
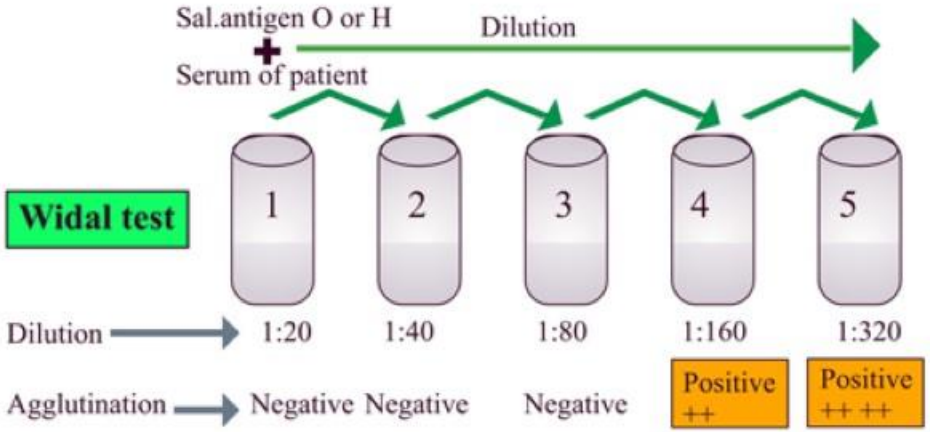
COMMON INFECTIOUS DISEASES IN MAN

BACTERIAL DISEASES

A. Typhoid

Widal test is used for confirmation of the disease.





Mary Mallon nicknamed **Typhoid Mary** was a professional cook. She was a **typhoid carrier** who continued to spread typhoid for several years through the food she prepared.

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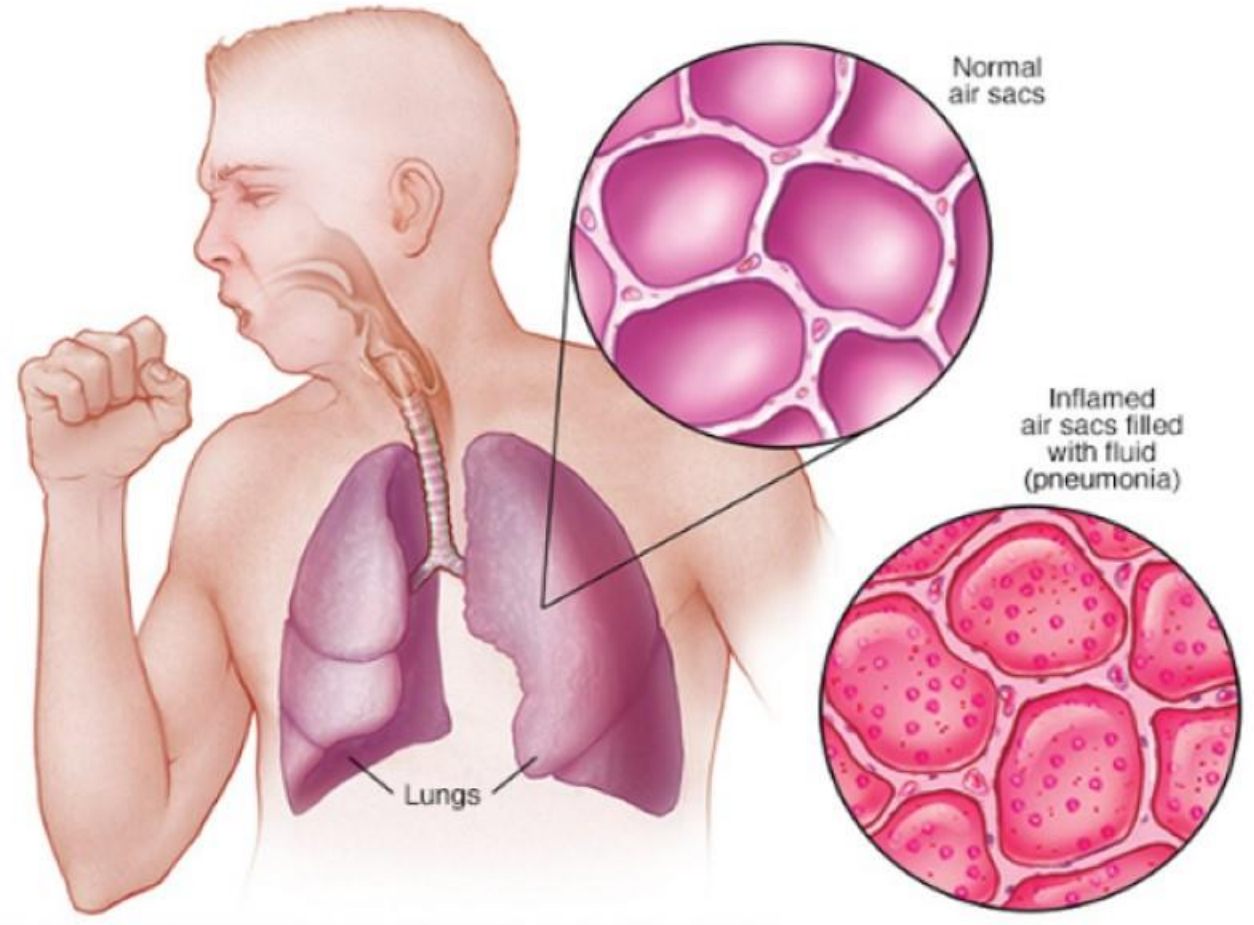
COMMON INFECTIOUS DISEASES IN MAN

BACTERIAL DISEASES

B. Pneumonia

- It infects lung alveoli.
- The alveoli get filled with fluid leading to respiratory problems.



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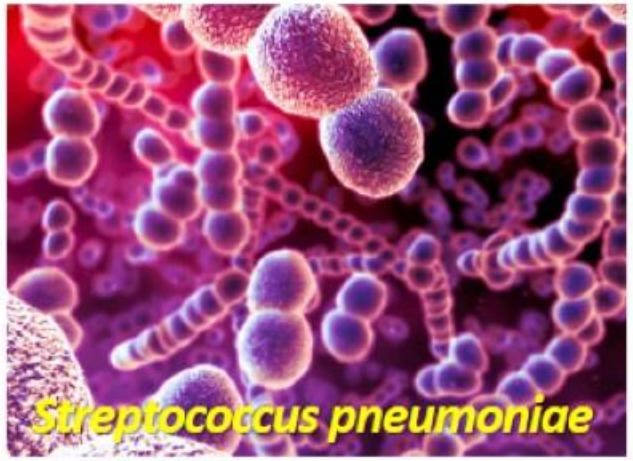
COMMON INFECTIOUS DISEASES IN MAN

BACTERIAL DISEASES

B. Pneumonia

Pathogen	*Streptococcus pneumoniae & Haemophilus influenzae*
Mode of transmission	Inhaling the droplets/aerosols released by an infected person. Sharing glasses and utensils with an infected person.



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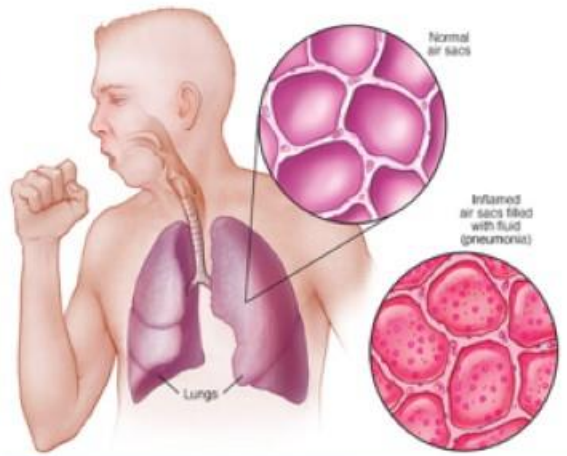
COMMON INFECTIOUS DISEASES IN MAN

BACTERIAL DISEASES

B. Pneumonia

Pathogen	*Streptococcus pneumoniae & Haemophilus influenzae*
Mode of transmission	Inhaling the droplets/aerosols released by an infected person. Sharing glasses and utensils with an infected person.
Symptoms	Respiratory problems, fever, chills, cough, headache. In severe cases, lips and finger nails turn grey to bluish colour.



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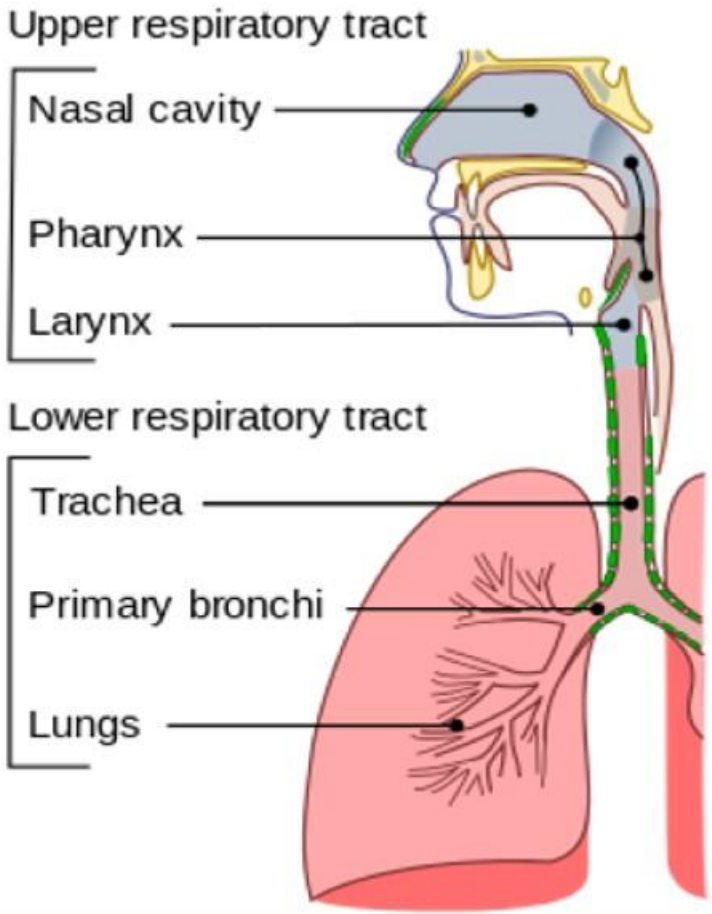
COMMON INFECTIOUS DISEASES IN MAN

VIRAL DISEASES

COMMON COLD

- It infects nose & respiratory passage but not lungs.
- It lasts for 3-7 days.



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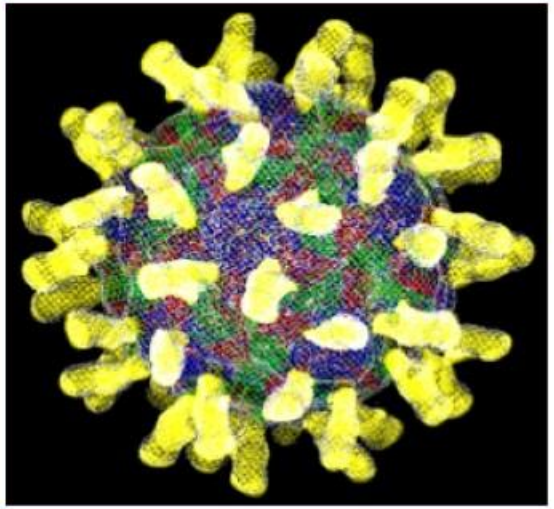
COMMON INFECTIOUS DISEASES IN MAN

VIRAL DISEASES

COMMON COLD

Pathogen	*Rhinoviruses*
Mode of transmission	Inhaling droplets resulting from cough or sneezes. Through contaminated objects (pens, books, cups, doorknobs, computer accessories) etc.
Symptoms	Nasal congestion & discharge, fever, headache, sore throat, cough, hoarseness, tiredness etc.



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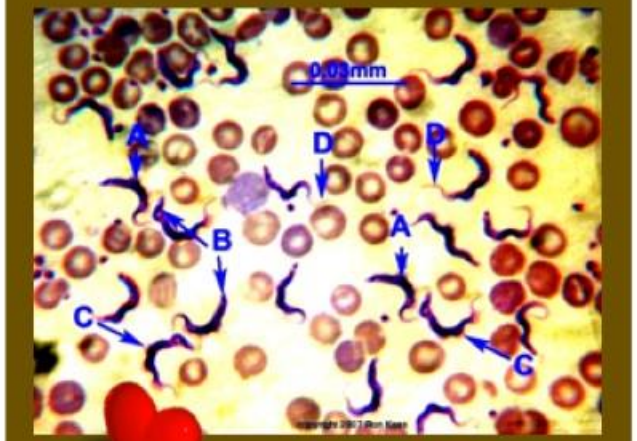
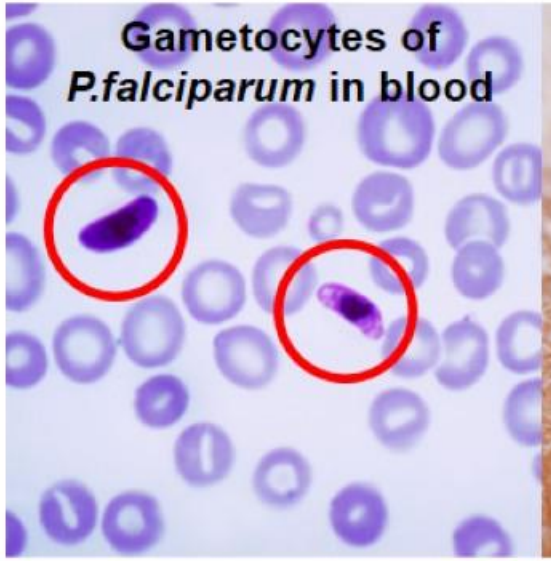
COMMON INFECTIOUS DISEASES IN MAN

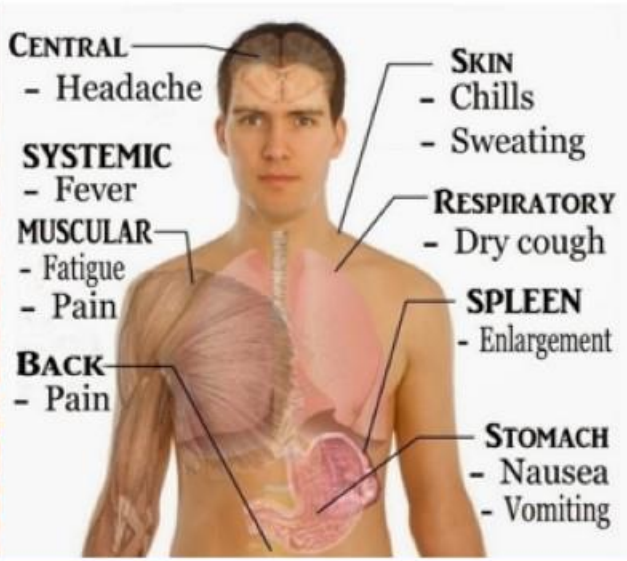
PROTOZOAN DISEASES

1. MALARIA



Pathogen	*Plasmodium sp. (P. vivax, P. malariae & P. falciparum).* *P. falciparum* causes most serious (malignant) malaria.
Mode of transmission	By biting of female *Anopheles* mosquito. 
Symptoms	Haemozoin (toxin released by Plasmodium) causes chill and high fever recurring every 3-4 days.





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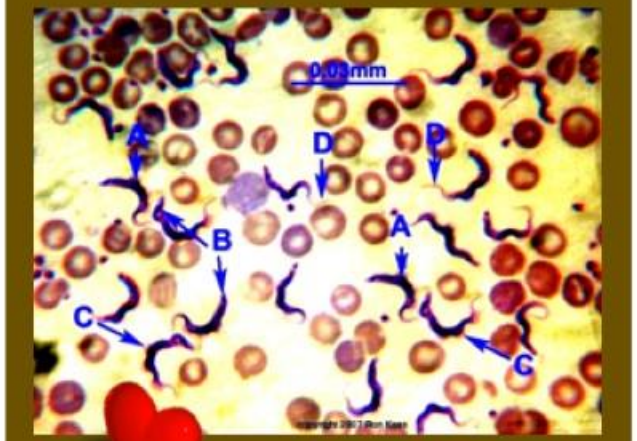
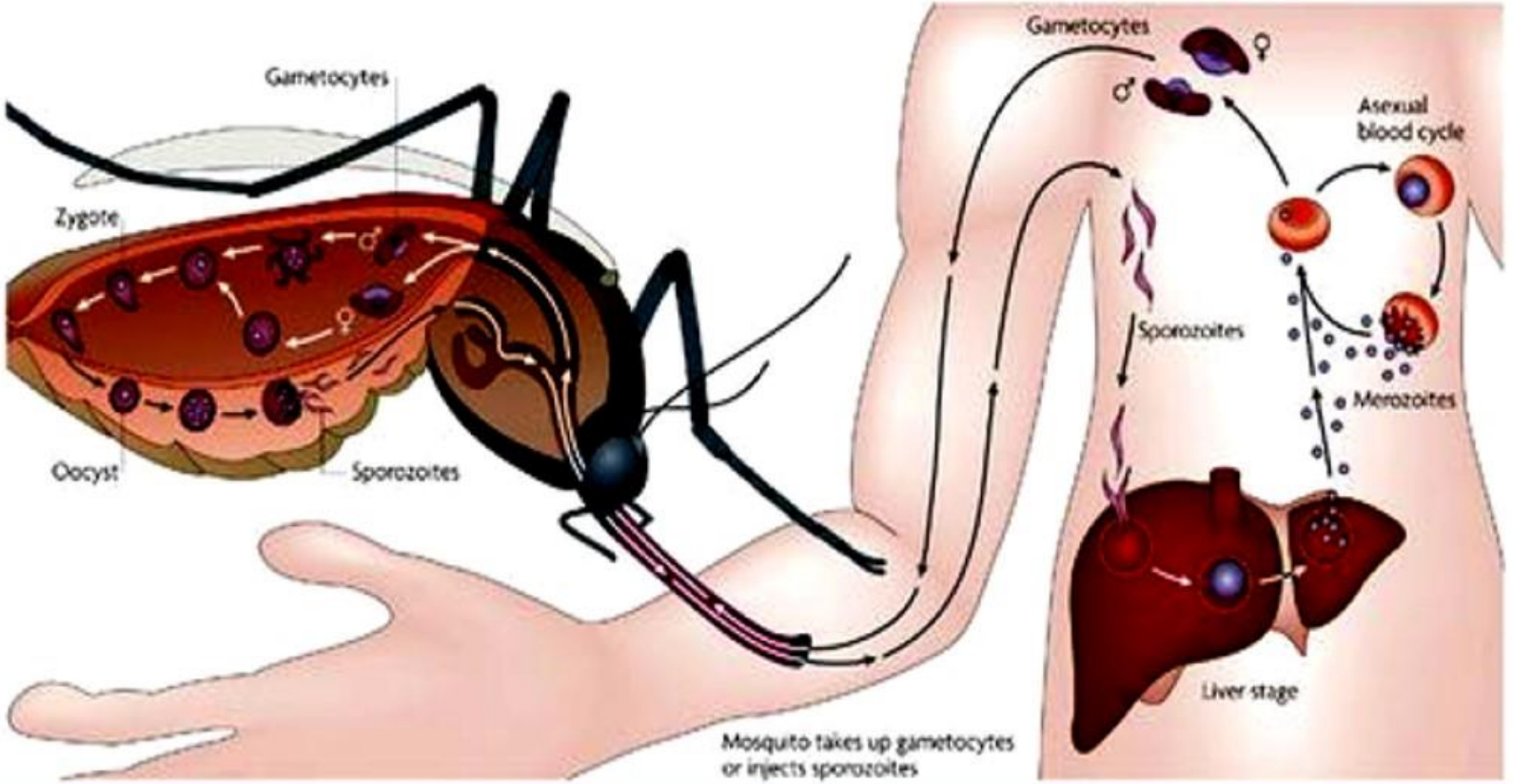


Life cycle of Plasmodium



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PROTOZOAN DISEASES

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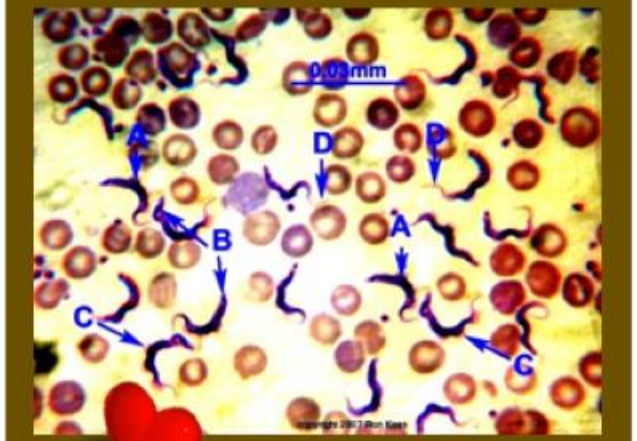

Life cycle of Plasmodium

Mature infective stages (sporozoites) escape from intestine and migrate to the mosquito salivary glands

Mosquito bites another human

Sporozoites (parasites) are injected

Parasites reach the liver through blood

Asexual reproduction in liver cells. Bursting cells release into blood

Asexual reproduction in RBCs. Bursting RBCs release Hemozoin. Cycles of fever & other symptoms.

Gametocytes (sexual stage) in RBCs.

Female mosquito sucks blood with gametocytes

Fertilization & development in mosquito's gut

MOSQUITO HOST

HUMAN HOST

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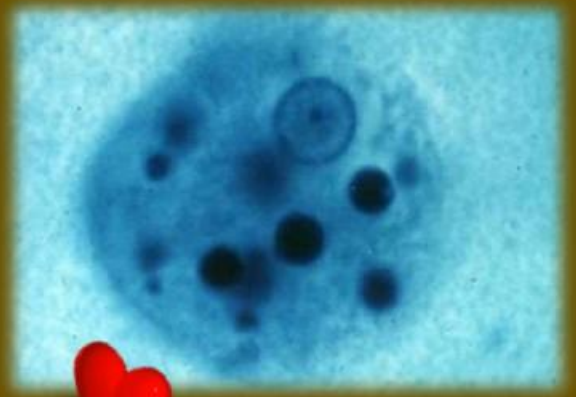
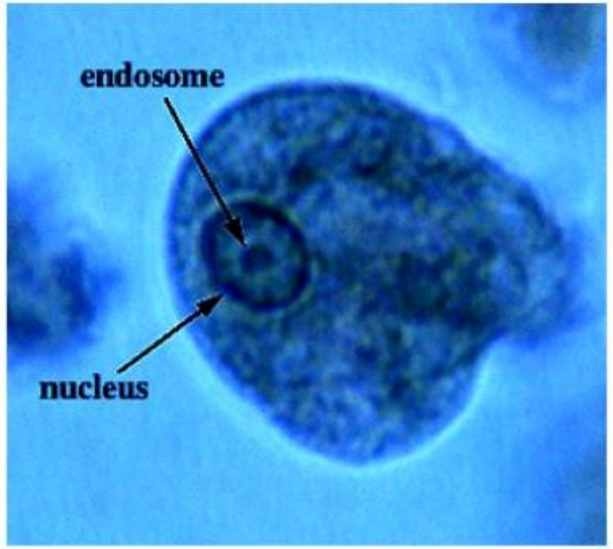
COMMON INFECTIOUS DISEASES IN MAN

PROTOZOAN DISEASES

2. AMOEBIASIS (AMOEBIC DYSENTERY)



Pathogen	*Entamoeba histolytica*
Mode of transmission	Houseflies (mechanical carriers) transmit parasites from faeces to food & water.
Symptoms	Constipation, abdominal pain and cramps, stools with excess mucous and blood clots.



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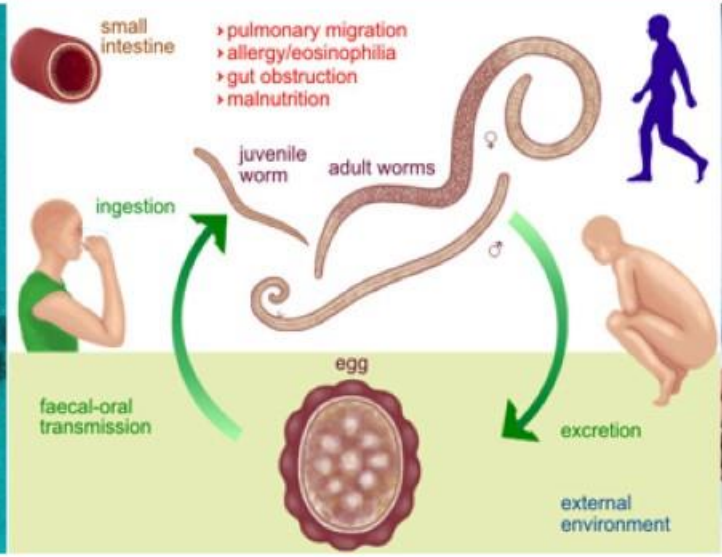
COMMON INFECTIOUS DISEASES IN MAN

HELMINTH DISEASES

1. ASCARIASIS

Pathogen	*Ascaris (Intestinal parasite).*
Mode of transmission	Soil, water, vegetables, fruits etc. contaminated with faeces containing eggs of parasites.
Symptoms	Internal bleeding, muscular pain, fever, anaemia and blockage of intestinal passage.



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COMMON INFECTIOUS DISEASES IN MAN

HELMINTH DISEASES

2. FILARIASIS (ELEPHANTIASIS)

Pathogen	Filarial worms or *Wuchereria (W. bancrofti & W. malayi)*
Mode of transmission	Bite of female *Culex* mosquito.
Symptoms	Filarial worms live in lymphatic vessels (usually of lower limbs). It causes chronic inflammation of the organs in which they live for many years. Limbs and genital organs may be deformed.

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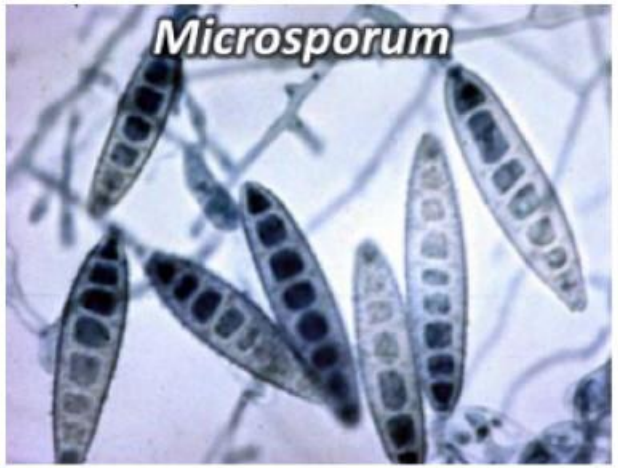
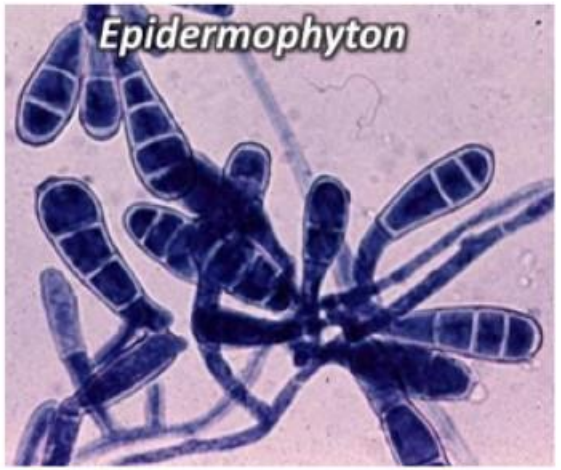
COMMON INFECTIOUS DISEASES IN MAN

FUNGAL DISEASES

RINGWORMS

Pathogen — *Microsporum, Trichophyton & Epidermophyton.*
They are seen in groin, b/w toes etc.





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COMMON INFECTIOUS DISEASES IN MAN

FUNGAL DISEASES

RINGWORMS

Pathogen	*Microsporum, Trichophyton & Epidermophyton. They are seen in groin, b/w toes etc.*
Mode of transmission	From soil or by using towels, cloths, comb etc. Heat and moisture help fungi to grow.

dermatophyte fungi

not washing hands

close contact with those infected

damp skin for extended time

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COMMON INFECTIOUS DISEASES IN MAN

FUNGAL DISEASES

RINGWORMS

Pathogen	*Microsporum, Trichophyton & Epidermophyton. They are seen in groin, b/w toes etc.*
Mode of transmission	From soil or by using towels, cloths, comb etc. Heat and moisture help fungi to grow.
Symptoms	Dry, scaly lesions on skin, nails, scalp etc. Intense itching.

Tinea capitis
(Ringworm of the scalp)

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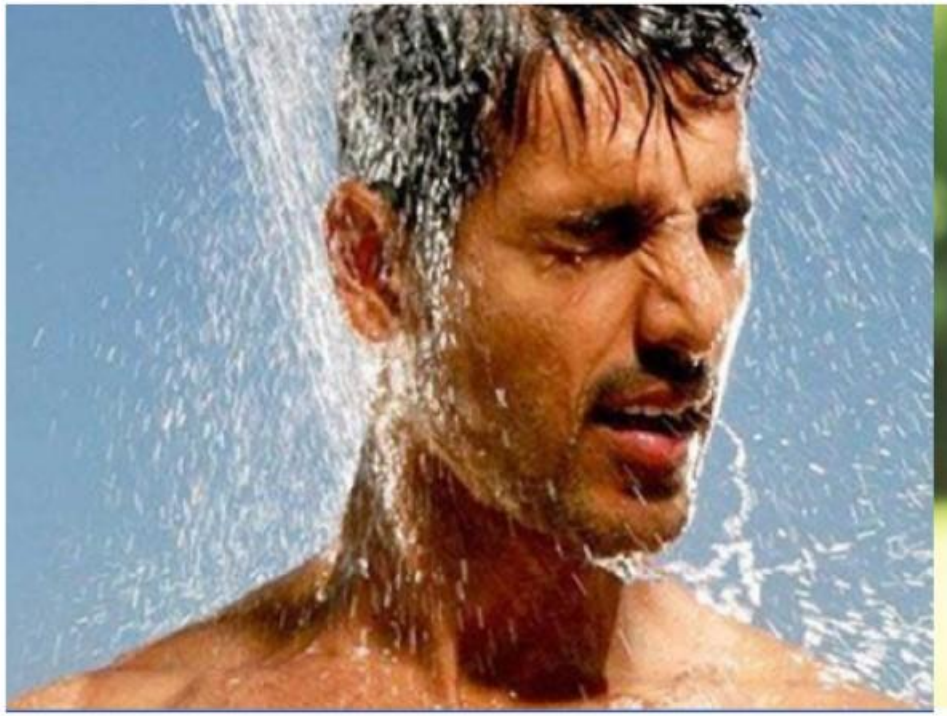
COMMON INFECTIOUS DISEASES IN MAN

PREVENTION & CONTROL OF DISEASES

Personal hygiene

- ✓ Keep the body clean.
- ✓ Use clean drinking water, food etc.



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COMMON INFECTIOUS DISEASES IN MAN

PREVENTION & CONTROL OF DISEASES

Public hygiene

a. Proper disposal of wastes and excreta.
b. Periodic cleaning and disinfection of water reservoirs, pools, cesspools & tanks.
c. Avoid contact with infected persons or their belongings (to control air-borne diseases).
d. Standard practices of hygiene in public catering.
e. Control & eliminate vectors (e.g. mosquitoes).

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COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Avoid stagnation of water.

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COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Regular cleaning of household coolers.

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COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Use of mosquito nets.

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COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Introduce larvivorous fishes like *Gambusia* in ponds.

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COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Spraying Insecticides in ditches, drainage & swamps.

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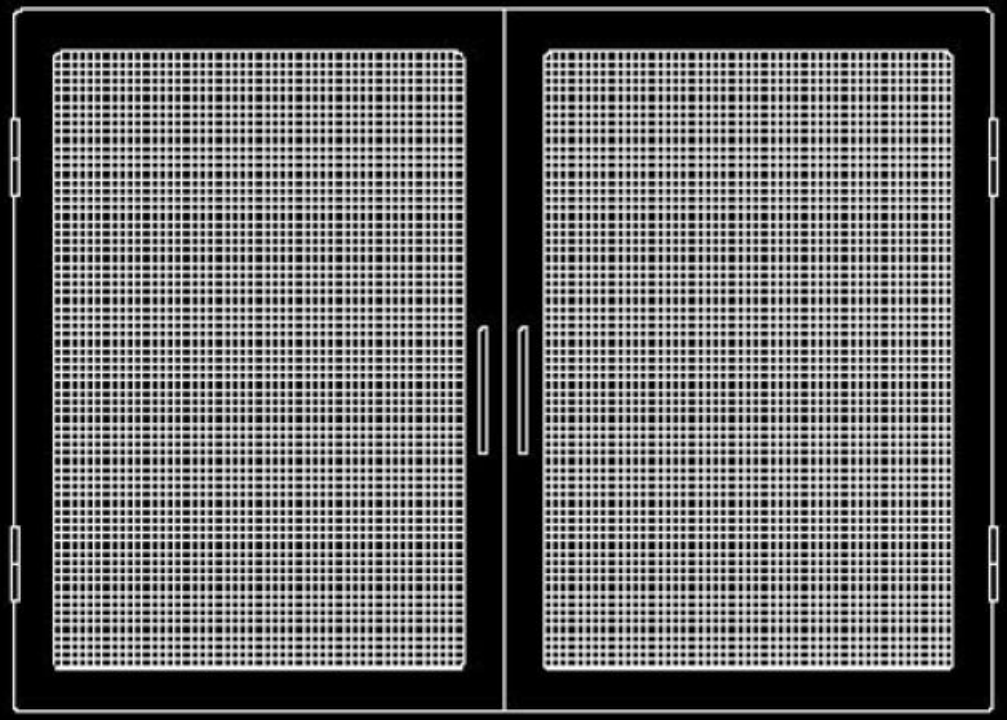
COMMON INFECTIOUS DISEASES IN MAN

Control & elimination of the vectors (e.g. mosquitoes)

Provide doors and windows with wire mesh.



These precautions can avoid vector borne diseases like Malaria, Filariasis, Dengue fever & Chikungunya.

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COMMON INFECTIOUS DISEASES IN MAN

- **Vaccines & immunisation** helped to control diseases like smallpox, polio, diphtheria, pneumonia & tetanus.
- Drugs like **antibiotics** also helped to treat infectious diseases.

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