

UNIT-2: PREVENTIVE MEDICINE

Points to be covered in this topic

- 1. CHOLERA
- 2. SARS
- 3. EBOLA VIRUS
- 4. INFLUENZA
- 5. ACUTE RESPIRATORY INFECTION
- 6. MALARIA
- 7. CHIKUNGUNYA
- 8. DENGUE
- 9. LYMPHATIC FILARIASIS
- 10. PNEUMONIA
- 11. HYPERTENSION
- 12. DIABETES MELLITUS
- 13. CANCER
- 14. DRUG ADDICTION AND DRUG ABUSE

CHOLERA

- Cholera, caused by **V. Cholerae (Vibrio cholerae)**, is a severe infection or acute diarrhoeal disease.

- Cholera is caused by infection with **Vibrio cholerae**, a **bacterium** that can be spread by **faecal matter, food or water**.
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❖ Epidemiology

- **Agent** :- V. Cholerae
 - **Host** :- Male, Female, Adult, Children
 - **Environment** :- Vegetables, Contaminated water, Street food
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❖ Transmission

- Cholera is transmitted by the **faecal-oral route through contaminated water and food**.
 - Person to person infection is rare.
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❖ Incubation period

- Between **2 hours and 5 days**.
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❖ Sign and Symptoms

- i. Dehydration
 - ii. Vomiting
 - iii. Loss of skin elasticity
 - iv. Nausea
 - v. Muscle Cramp
 - vi. Hypotension
 - vii. Cardiovascular Shock
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❖ Prevention and control

- 1) Make sure to drink and use safe water to brush your teeth, wash, and prepare food and make ice.
 - 2) It is safe to drink and use **bottled water with unbroken seals** and **canned or bottled carbonated beverages**, **vaccination given** and **rehydration, IV fluids, and antibiotics**.
 - 3) **Vaccination** against **cholera to traveler's** to endemic countries and during public gatherings.
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❖ Critical Elements in Cholera Control

1. **Prevention** :- Improve access to safe water, promote sanitation and hygiene and health education on food safety.
 2. **Preparedness** :- Train health personnel in **detection, identifying, reporting and treating cases**.
 3. **Response** :- Detect, confirm, report and manage cases in order to **prevent, spread, morbidity and mortality** of cholera.
 4. **Effective Surveillance** :- **Routinely collect, Analyse and interpret data** at the **facility, district and national levels** for early detection of an outbreak.
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❖ Guidelines for Cholera Control proposed by the WHO

Verification of the Diagnosis	All cases of diarrhoea should be investigated even on the slightest suspicion. For the specific diagnosis of cholera, it is important to identify V. cholera in the stools of the patient.
Notification	Health workers at all levels (community health workers and the multi-purpose workers) should be trained to identify and notify cases immediately to the local health authority.
Early Case-Finding	An aggressive search for cases (mild, moderate, severe) should be made in the community.
Establishment of Treatment Centres	It is necessary to establish easily accessible treatment facilities in the community.
Rehydration Therapy	Oral rehydration therapy (ORS) Intravenous Rehydration:- Only for the initial rehydration of severely dehydrated patients who are in shock or unable to drink. The solutions recommended by WHO for intravenous infusion are: Ringer's lactate solution (also called Hartmann's solution for injection). Diarrhoea Treatment Solution (DTS). If nothing else is available, normal saline can be given because it is often readily available.

❖ Sanitation Measures

Water Control	All steps must be taken to provide properly treated or otherwise safe water to the community for all purposes (drinking, washing and cooking).
Excreta Disposal	Provision of simple, cheap and effective excreta disposal system (sanitary latrines) is a basic need of all human settlements.
Food sanitation	
Disinfection	The most effective disinfectant for general use is a coal tar disinfectant with a Rideal-Walker (RW) co-efficient of 10 or more such as; cresol.

❖ Vaccination

Oral Vaccine :- Two types of oral cholera vaccines are available:

- i. **Dukoral (WC-rBS)**
 - ii. **Sanche and mORCVAX**
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❖ Health education

It should be directed mainly to:

- (a) The effectiveness and simplicity of **oral rehydration therapy**.
 - (b) Hand washing after **defecation and before eating**.
 - (c) The benefit of **cooked, hot foods and safe water & Food hygiene practices**.
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SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

- **Severe acute respiratory syndrome (SARS)** is a serious form of **pneumonia**.
 - Infection with the SARS virus causes **acute respiratory distress (severe breathing difficulty)**, and sometimes **death**.
 - In some cases there is rapid deterioration with **low oxygen saturation and acute respiratory distress** requiring ventilatory support.
 - The earliest case was traced to a health care worker in **China**, in late 2002, with rapid spread to **Hong Kong, Singapore, Vietnam, Taiwan and Toronto**.
 - As of early August 2003, about **8,422 cases** were reported to the **WHO** from 30 countries with **916 fatalities**.
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❖ Caused by Coronavirus

The most common symptoms:

- ✓ Fever, malaise, chills

- ✓ Headache myalgia, Dizziness, cough
 - ✓ Sore throat and running nose
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❖ Incubation period & Mode of transmission IP

- ✓ 2 to 7 days, commonly 3 to 5 days.
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❖ Transmission

- The primary mode of transmission appears to be through **direct or indirect contact with respiratory droplets or fomites**.
 - The use of **aerosol-generating procedures (endotracheal intubation, bronchoscopy, nebulization treatments)** in hospitals may amplify the transmission of the SARS coronavirus.
 - The natural reservoir appears is **bat**.
 - It is the disease of **Civet**.
 - The SARS virus can survive for **hours on common surfaces** outside the human body, and **up to four days in human waste**.
 - The virus can survive at least for **24 hours on a plastic surface at room temperature**, and can live for extended periods in the **cold**.
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❖ Diagnostic tests required for laboratory confirmation of SARS

(a) **Conventional reverse transcriptase PCR (RT-PCR)** and **real-time reverse transcriptase PCR (real-time RT-PCR)** assay detecting viral RNA present in:

- ✓ Clinical specimens (**e.g. Nasopharyngeal and Stool specimens**)

✓ The same clinical specimen collected on **2 or more occasions** during the course of the illness (e.g. **sequential nasopharyngeal aspirates**)

✓ Virus culture from any clinical specimen

(b) Enzyme-linked immunosorbent assay (ELISA) and immunofluorescent assay (IFA)

1. **Negative antibody test** on serum collected during the acute phase of illness, followed by **positive antibody test** on **convalescent-phase serum**, tested **simultaneously**.
2. A **4-fold or greater rise** in antibody titre against SARS-CoV between an **acute-phase serum specimen** and a **convalescent-phase serum specimen (paired sera)**, tested simultaneously.

❖ **Prevention**

- As there is **no vaccine against SARS**, the preventive measures for SARS control are appropriate detection and protective measures which include:
 - i. Prompt **identification of persons with SARS, their movements and contacts**.
 - ii. Effective **isolation of SARS** patients in hospitals.
 - iii. Appropriate **protection of medical staff** treating these patients.
 - iv. Comprehensive **identification and isolation of suspected SARS cases**.
 - v. Simple hygienic measures such as **hand-washing after touching patients**, use of **appropriate and well-fitted masks**, and introduction of infection control measures.
 - vi. Exit screening of international travelers.
 - vii. **Timely and accurate reporting and sharing of information** with other authorities and/or governments.
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EBOLA VIRUS DISEASE (EVD)

- **Ebola Virus Disease (EVD)** Also **Ebola hemorrhagic fever (EHF)** is a severe, often **fatal illness** in humans.
 - Ebola virus is one disease that is **spreading faster**.
 - History of **Ebola Virus** The **Ebola Virus first appeared in 1976**, - Sudan - Democratic Republic of **Congo 431** fatality figures recorded in 1976.
 - The **incubation period** is **2 to 21 days**.
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❖ Signs & Symptoms

- ✓ Fever fatigue
- ✓ Muscle pain
- ✓ **Headache and sore throat**
- ✓ Gastrointestinal symptoms including **diarrhoea and vomiting**
- ✓ **Abdominal (stomach) pain**
- ✓ Unexplained **hemorrhaging, bleeding or bruising**

❖ Causes of Ebola Virus Disease

- EVD in humans is caused by one of the five strains of the Ebola virus:
 - ✓ **Bundibugyo virus (BDBV)**
 - ✓ **Sudan virus (SUDV)**
 - ✓ **Tai Forest virus (TAFV)**
 - ✓ **Ebola virus (EBOV)**

- ✓ Reston virus (RESTV)
-

❖ Transmission

- Ebola is **not an airborne virus**. Unlike some other viruses, the Ebola virus **can only be spread by body fluids**.
 - Ebola is introduced into the human population through **close contact with the blood, secretions, organs or other body fluids of infected animals** such as: Chimpanzees, gorillas, fruit bats, monkeys, forest antelope, and porcupines.
 - The average EVD case fatality rate is around **50%**.
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❖ Vaccines

- **ERVEBO®** (Ebola Zaire Vaccine, Live – also known as **V920, rVSVΔG-ZEBOV-GP** or **rVSV-ZEBOV**) is approved by the U.S. FDA for the prevention of disease caused by **Zaire ebolavirus**.
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❖ Prevention & Control Strategy

- Risk reduction by **avoiding contact**.
 - Reducing **human-to-human transmission by use of PPE** (Personal Protective Equipment).
 - **Active surveillance** – Contact tracing and monitoring – Reporting/Notification.
 - **Avoid contact with non-human primates and bats**, including **body fluids or raw meat prepared** from these animals.
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- ✓ Wash hands as needed
 - ✓ Isolate the patient
 - ✓ Wear protective clothing
 - ✓ Dispose of needles and syringes safely
 - ✓ Dispose of waste safely
 - ✓ Use safe burial practices
 - ✓ Avoid physical contact
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❖ Healthcare Workers Should Understand the Following Basic Principles of Using PPE

- **Donning:** PPE must be donned correctly in **proper order** before **entry into the patient care area**.
 - **During Patient Care:** PPE must remain in place and be worn correctly throughout exposure. Should not be adjusted.
 - **Doffing:** PPE must be **removed slowly and deliberately** in the correct sequence to avoid **self-contamination**.
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❖ Diagnosis

- Antibody-capture enzyme-linked immunosorbent assay (**ELISA**)
- Antigen-capture detection tests
- Serum neutralization test

- Reverse transcriptase polymerase chain reaction (**RT-PCR**) assay
 - Electron microscopy
 - Virus isolation by cell culture
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INFLUENZA

- Influenza (the flu) is a **contagious respiratory illness** caused by **influenza viruses**.
 - It can cause **mild to severe illness** and sometimes **lead to death**.
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❖ Causes

- Caused by a virus from the **MYXOVIRUS** group:
 - Orthomyxo virus and Paramyxovirus
 - **Influenza virus is an Orthomyxo virus**
 - Influenza viruses are **RNA viruses**:
 - ✓ Influenza virus A
 - ✓ Influenza virus B
 - ✓ Influenza virus C
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❖ Incubation Period

- **1 to 4 days**, peak shedding during the **first 3 days of illness**.
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❖ Transmission

- Spread by three ways:
 - ✓ **Direct transmission** to mucous membranes.
 - ✓ **Airborne route** via **droplets (0.5–5 µm diameter)**.
 - ✓ **Contaminated surfaces, handles, etc.**
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❖ Sign & Symptoms

- ✓ Dyspnoea
 - ✓ Bluish discolouration of skin
 - ✓ Shortness of breath
 - ✓ Confusion
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❖ Prevention and Control of Influenza

- ✓ Keep safe distance
- ✓ Stay home from work, school, office
- ✓ Cover mouth and nose when coughing/sneezing
- ✓ Wash hands frequently
- ✓ Drink fluids, eat nutritious food

- ✓ Manage stress
 - ✓ Use **antiviral drugs** for prevention/treatment
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❖ Influenza Vaccines

1. **Inactivated subunit (TIV)** – intramuscular
 2. **Live attenuated vaccine (LAIV)** – intranasal
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❖ Treatment

- ✓ **Amantadine** and **Rimantadine** are active only against **Influenza A**.
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ACUTE RESPIRATORY INFECTION (ARI)

- Acute respiratory infection is a serious infection that **prevents normal breathing**.
- Usually begins as a **viral infection in the nose, trachea (windpipe), or lungs**.
- ARIs are classified as:
 - **Upper respiratory tract infections (URIs)**
 - **Lower respiratory tract infections (LRIs)**
- The **upper respiratory tract** consists of airways from:
 - **Nostrils to the vocal cords in the larynx**, including the **paranasal sinuses and middle ear**.
- The **lower respiratory tract** includes the windpipe (trachea) and within the lungs, the bronchi, bronchioles, and alveoli.

❖ Causes of acute respiratory infection Agent -

Bacterial	Viral
Bordetella pertussis, C. diphtheria, Streptococcus Pneumonia, H. Influenza (type b)	Adenoviruses, Respiratory Syncytial Virus, Rhinoviruses, Influenza, Coronaviruses

❖ Mode of Transmission

- All the causative organisms are normally transmitted by the **airborne route**.
 - The viruses **do not survive** for long outside the respiratory tract, the chain of transmission is maintained by **direct person-to-person contact**.
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❖ Symptoms

UPPER RESPIRATORY TRACT INFECTION	LOWER RESPIRATORY TRACT INFECTIONS
Common cold	Severe and more productive cough
Headache	A tight feeling in the chest
Pharyngitis	Breathlessness
Stuffed or runny nose	
Sore throat	
Sneezing	
Muscle aches and pain	

❖ Treatment

- Throat swab
 - Lateral neck X-rays
 - Chest X-ray
 - CT scans
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❖ Prevention

- i. Avoiding being in **close contact with sick people.**
 - ii. **Covering mouth and nose.**
 - iii. **Staying home**
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MALARIA

- It is an intermittent & remittent fever caused by **protozoan parasite** which **invade the red blood cell** & it is transmitted by mosquitoes.
 - Malaria is a protozoal disease caused by *Plasmodium* and transmitted to man by certain species of infected **female Anopheles mosquito.**
 - Four kinds of malaria parasites infect humans includes; Plasmodium falciparum, P. vivax, P. ovale and P. malariae.
 - Infected mosquitoes carry the **Plasmodium parasite.**
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❖ Agent :-

Female anopheles mosquitoes which bite to human and plasmodia enter the human body which cause malaria.

❖ Source of infection :-

The parasite are spread to the people through the bite of infected female anopheles mosquito called malaria vectors.

There are 4 parasite species that cause malaria in humans, they are **Plasmodium Vivax, falciparum, malariae and ovale.**

❖ Incubation period :-

Gametocyte usually appear within 3 days of **parasitemia with P. vivax & P. ovale** after 10–14 days.

The gametocyte phase is the period when malaria is ready to transmit from human to mosquito.

❖ Mode of transmission :-

1. **Female Anopheles mosquitoes bite**

2. **Blood**

- Blood transfusion
- Needle-stick injuries
- Organ transplant
- The shared use of needles or syringes

3. **Congenital malaria** :- From a mother to her child during pregnancy before or during delivery

❖ Diagnosis :-

By Microscopy use of blood film searching for and identification of malaria parasite,
by Serological test,
by **Rapid diagnostic test (RDT)** based on detection of circulating parasite antigen with a simple dipstick format.

❖ **Complications :-**

- Breathing problems
 - Liver failure, jaundice
 - Shock, dehydration, swelling and rupturing of the spleen etc.
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❖ **Prevention and control :-**

- **Protection against mosquito bites** include the **use of mosquito bed nets** (preferably **insecticide-treated nets**)
 - The wearing of clothes that cover most of the body, and use of **insect repellent on exposed skin.**
 - More strategy and prevention is given in under **national health programme chapter under NVBCD programme.**
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❖ **Treatment**

- **Artemisinin-based combination therapies (ACTs).**
- **ACT** is a combination of **two or more drugs** that work **against the malaria** parasite in different ways.
- Treatment for chloroquine-resistant malaria. Examples include **Artemether-Lumefantrine (Coartem)** and **Artesunate-Mefloquine.**

CHIKUNGUNYA

- Chikungunya virus is causative virus, an arthropod born virus a member of **Alphavirus genus and Togaviridae family**.
 - It was first isolated in 1953 in Tanzania.
 - It is an RNA virus.
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❖ Causes of Chikungunya Virus

- Chikungunya is Caused by '*Chikungunya Virus*' (CHIKV).
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❖ Incubation period :-

- 4–7 days
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❖ Transmission :-

Chikungunya is a mosquito borne viral disease transmitted in human by an alpha virus that is spread by the infected '**Aedes aegypti**' & '**Aedes albopictus**' mosquitoes.

Mosquito bites and sucks blood containing the virus from an infected person.



Virus is carried in its body and the virus multiples in the Gut.



And passes the virus to healthy people when it bites them.



Manifestation of illness between 1 to 12 days.

❖ Epidemiology of Chikungunya

- It was first described during an outbreak in **southern Tanzania in 1952**.
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❖ Signs & Symptoms

- i. High fever (40°C/104°F)
 - ii. Joint pain (ankle, knees, wrists or phalanges)
 - iii. Joint swelling
 - iv. Rash
 - v. Headache
 - vi. Muscle pain
 - vii. Nausea
 - viii. Fatigue
-

❖ Prevention of Chikungunya

- **Insecticides or biological control** agents can be used.
 - Using insect repellents with substances such as **DEET, icaridin, PMD or IR3535**.
 - Wearing **bite-proof long sleeves and trousers** also offers protection.
 - Securing screens on **windows and doors at house** will help to keep **mosquitoes out of the house**.
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❖ Diagnosis of Chikungunya

- **Enzyme-linked immunosorbent assays (ELISA)**, may confirm the presence of **IgM and IgG anti-chikungunya** antibodies.
- **RT-PCR**

❖ Treatment of Chikungunya

- Treatment is directed primarily at relieving the symptoms, including joint pain using **anti-pyretics, optimal analgesics and fluids**.
- There is **no commercial Chikungunya vaccine** till date.



DENGUE

- Dengue fever is a self-limiting disease caused by **Dengue viruses (ARBOVIRUS)**.

➤ Dengue virus:

- **4 Serotypes: DENV-1, DENV-2, DENV-3, and DENV-4**
- **Family: Flaviviridae**
- **Single stranded RNA virus**

❖ Signs & Symptoms

- i. Sudden, high fever with chills
- ii. Intense headaches
- iii. Pain behind the eyes
- iv. Severe joint and muscle pain
- v. Fatigue
- vi. Anorexia
- vii. Constipation
- viii. Altered taste sensation

ix. Colicky pain

x. Sore throat

❖ **Complication**

- Seizures
 - Brain damage
 - Blood clots
 - Damage to the liver and lungs
 - Heart damage, shock, death
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❖ **Diagnosis of Dengue Fever**

- i. **Complete blood count** (CBC or CBP)
- ii. **Dengue Serology Test** (Dengue IgG & IgM)
- iii. **Dengue Virus Antigen** Detection (NS1)

❖ **Preventive & control**

- i. Use **mosquito repellents**, even indoors.
- ii. When outdoors, wear **long-sleeved shirts and long pants tucked into socks**.
- iii. When indoors, use **air conditioning if available**.
- iv. Make sure **window and door screens are secure and free of holes**.

❖ **Treatment**

- i. There is no specific medicine to treat dengue infection.
- ii. Use pain relievers with **Acetaminophen** and **avoid** medicines with **Aspirin**, which could **worsen bleeding**.
- iii. Take rest, drink plenty of fluids.



LYMPHATIC FILARIASIS

- Lymphatic filariasis commonly known as **elephantiasis** is a neglected tropical and vector borne parasitic disease.
- The disease is caused by thread-like, parasitic filarial worms:
 - **Wuchereria bancrofti** (about 95% cases)
 - **Brugia malayi**
 - **Brugia mori**
- These are spread by **blood-feeding black flies and mosquitoes**.
- This disease belongs to the group of disease called **Helminthiasis**.

❖ Incubation period

- **4 weeks to 8 to 16 months**

❖ Sign & symptoms

- i. Severe swelling
- ii. Blocked lymph ducts
- iii. Massive leg swelling
- iv. Impaired lymphatic drainage
- v. Thickened skin tissue
- vi. Fibrotic skin tissue
- vii. Brawny skin color
- viii. Skin ulceration
- ix. Pebbly skin appearance
- x. Verrucous skin appearance

❖ Mode of Transmission

- **Filariasis** is transmitted by the **bite of infected vector mosquitoes**.

- It passes through the **punctured skin** or may **penetrate the skin** on its own and finally reach the **lymphatic system**.

❖ Prevention

- i. Avoiding mosquitoes or taking precautions to reduce your risk for mosquito bites.
 - ii. Getting rid of **mosquito breeding areas**.
 - iii. Using **mosquito nets**.
 - iv. Wearing **insect repellents**.
 - v. Wearing **long-sleeved shirts and pants** in areas with a lot of mosquitoes.
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❖ Treatment

- Taking **Diethylcarbamazine (DEC)**, **Albendazole** and **Ivermectin** as a preventive treatment before traveling to areas prone to infection.
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PNEUMONIA

- Pneumonia is an infection in **one or both lungs**.
 - Pneumonia causes **inflammation in the alveoli**.
 - The alveoli are filled with **fluid or pus**, making it **difficult to breathe**.
 - "**Inflammation and consolidation** of lung tissue due to an **infectious agent**".
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❖ Causes

Type	Examples
Bacteria	Streptococcus Pneumonia, Haemophilus Influenza type B (Hib).
Virus	Respiratory Syncytial Virus, Influenza Virus, Parainfluenza Virus.

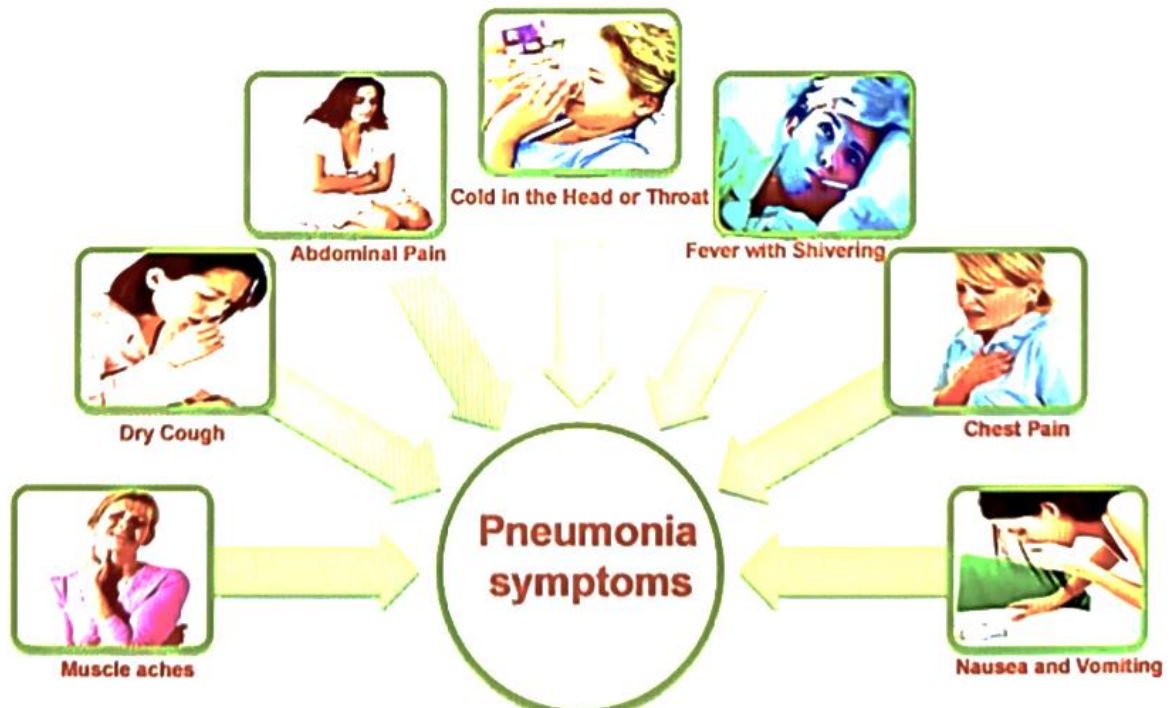
Type	Examples
Fungi	Coccidioides, Blastomyces, Aspergillus, Cryptococcus, Pneumocystis jiroveci Pneumonia.

❖ Types

- Pneumonia is classified on two types:
 - Type 1:** - Lobar pneumonia and Bronchopneumonia.
 - Type 2:** - Community-acquired pneumonia (CAP) and Hospital-acquired pneumonia (HAP).

Type - 1	Description
Lobar pneumonia	Lobar pneumonia affects one or more lobes of the lungs . It's often localized close to or around the bronchi .
Bronchopneumonia	Can affect areas throughout both lungs.
Type - 2	Description
Hospital-Acquired Pneumonia (HAP)	A bacterial pneumonia acquired during a hospital stay. Often more severe due to resistance to antibiotics .
Community-acquired pneumonia (CAP)	Acquired outside of a medical or institutional setting .
Ventilator-Associated Pneumonia (VAP)	Occurs in people using a ventilator .
Aspiration Pneumonia	Inhaled bacteria from food, drink, or saliva . Common in patients with swallowing problems or sedated from medications, alcohol , etc.

❖ Sign & symptoms



❖ Diagnosis

- i. Blood tests
- ii. Chest X-ray
- iii. Pulse oximetry
- iv. Sputum test
- v. **CT scan**
- vi. **Pleural fluid culture**



❖ Prevention & control

- **Quit smoking**, smoking makes more susceptible to **respiratory infections**, especially **pneumonia**.
 - Regular **hand wash with soap and water**.
 - Cover your **coughs and sneezes**.
 - Maintain a healthy **lifestyle to strengthen** your immune system.
 - Get enough rest, eat a **healthy diet and get regular exercise**.
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❖ Pneumonia complications

TRICKS :- SLAP HER

S - Septicaemia

L - Lung abscess

A - ARDS (Acute respiratory distress syndrome)

P - Parapneumonic effusions

H - Hypotension

E - Empyema

R - Respiratory failure /renal failure

❖ Treatment

i. Antibiotics :-

- Clarithromycin or Azithromycin or Doxycycline
- Piperacillin/Tazobactam, Cefepime, Imipenem, Meropenem plus

ii. Respiratory Fluoroquinolone :-

- Moxifloxacin, Levofloxacin

iii. β -lactam :-

- (High-dose Amoxicillin or Amoxicillin/Clavulanate)

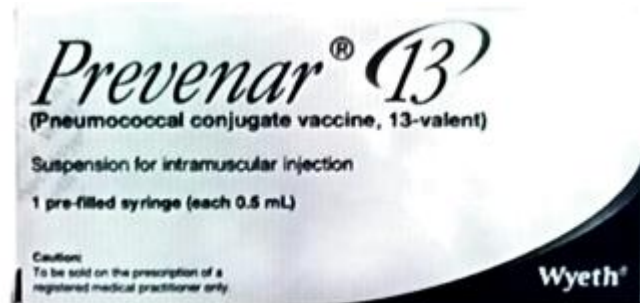
❖ Vaccines

i. Prevnar 13

ii. Pneumovax 23

iii. Flu vaccine

iv. Hib vaccine



HYPERTENSION

- Hypertension is a **high or raised blood pressure**, is a condition in which, the **blood vessels have persistently raised pressure**. It is also known as **high blood pressure**.
- The **SBP (Systolic blood pressure)** will be more than or **equal of 140 mmHg**, and **DBP (diastolic blood pressure)** will be **more than or equal of 90 mmHg**.

◆ Hypertension is divided into two types:-

1. Primary hypertension or Essential hypertension
2. Secondary hypertension or Malignant hypertension

❖ Signs and Symptoms

i. Headache

ii. Nausea

iii. Vomiting

iv. Dizziness

v. Blurred or double vision

vi. Nose bleeds

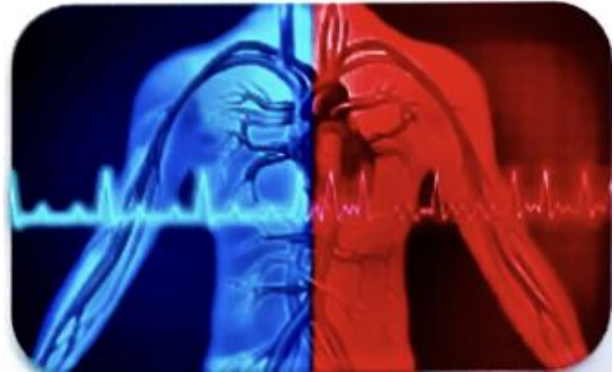
Blood Pressure Category	Systolic mm Hg (upper number)	and/or	Diastolic mm Hg (lower number)
Normal	Less than 120	and	Less than 80
Elevated	120 - 129	and	Less than 80
High Blood Pressure (Hypertension) Stage 1	130 - 139	or	80 - 89
High Blood Pressure (Hypertension) Stage 2	140 or higher	or	90 or higher
Hypertensive Crisis (consult your doctor immediately)	Higher than 180	and /or	Higher than 120

vii. **Heart palpitations**

viii. **Breathlessness**

❖ **Prevention of High Blood Pressure**

- i. Eating a Healthy Diet
- ii. Getting Regular Exercise
- iii. Being at a Healthy Weight
- iv. Limiting Alcohol
- v. Not smoking and managing stress.



❖ **Prevention and Control of Hypertension**

◆ **Dash therapy & Dash diet :-**

- i. The DASH diet (**Dietary Approaches to Stop Hypertension**) is a dietary pattern for hypertensive patients.
- ii. The DASH diet is **rich in fruits, vegetables, whole grains and low-fat dairy foods**.
- iii. It includes **meat, fish, poultry, nuts and beans** and is limited in **sugar-sweetened foods and beverages, red meat and added fats**.

❖ **Treatment (Medication for High Blood Pressure)**

- Some of the medications used to treat hypertension include:-
 - i. **Beta-blockers**
 - ii. **Diuretics**
 - iii. **ACE inhibitor**
 - iv. **Angiotensin II receptor blockers (ARBs)**
 - v. **Calcium channel blockers**
 - vi. **Alpha-2 agonists**



DIABETES

- Diabetes mellitus is a group of **metabolic disorders** in which a person has **high blood sugar**, either because the **body does not produce** enough insulin, or because **cells do not respond to the insulin that is produced**.

❖ Types of diabetes mellitus

✓ **Type 1 diabetes** :- results from the **body's failure to produce insulin**, and presently requires the **person to inject insulin**.

✓ **Type 2 diabetes** :- results from **insulin resistance**, a condition in which cells fail to use insulin properly, sometimes combined with an **absolute insulin deficiency**.

✓ **Gestational diabetes** :- is when pregnant women, who have never had diabetes before, have a high blood glucose level during pregnancy. It may precede development of type 2 DM.

❖ Sign and symptoms

- i. Feeling more **thirsty** than usual.
- ii. Urinating often.
- iii. Losing weight without trying.
- iv. Presence of **ketones** in the urine.
- v. Feeling tired and weak.
- vi. Feeling irritable or having other mood changes.
- vii. Having blurry vision.
- viii. Having slow-healing sores.



Risk factors

- i. Family history of diabetes
- ii. Alcohol use.
- iii. Tobacco use.
- iv. Stress full lifestyle.
- v. Unhealthy diet



Management of diabetes

- i. **Physical activity**
- ii. **Use of drugs**
- iii. **Diabetes education and counselling**
- iv. **Oral blood sugar lowering tablets**
- v. **Insulin injection**

Prevention & control

- **Eat healthy foods** :- more vegetable and fruits
- Diet and **anti-diabetic drugs**
- **Diet and insulin Routine** **check up of BP**
- Visual acuity, weight and blood glucose
- **Glycosylated hemoglobin estimation**
- Self care



Diagnosis

- i. **Urine examination**
- ii. **Blood sugar testing**

❖ **Treatment**

- i. **Sulfonylureas**
- ii. **Glinides**
- iii. **Thiazolidinediones**
- iv. **DPP-4 inhibitors**
- v. **GLP-1 receptor agonists**
- vi. **SGLT2 inhibitors**



CANCER

- Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells.

❖ **Types of Cancer**

- i. **Bladder Cancer**
- ii. **Breast Cancer**
- iii. **Colorectal Cancer**
- iv. **Kidney Cancer**
- v. **Lung Cancer - Non-small Cell**
- vi. **Lymphoma - Non-Hodgkin's**
- vii. **Melanoma**
- viii. **Oral and Oropharyngeal Cancer**
- ix. **Pancreatic Cancer**
- x. **Prostate Cancer**
- xi. **Thyroid Cancer**
- xii. **Uterine Cancer**

❖ Cause of cancer

- i. **Life style factors**:– Tobacco smoke, Alcohol
- ii. **Environmental agents**, Viral or Genetic factors
- iii. **UV radiation in sunlight**.
- iv. **Cancer causing factors related to Bacteria and viruses**:
 - ✓ **Helicobacter pylori** (**H. pylori**, which causes gastritis).
 - ✓ **HBV, HCV** (Hepatitis viruses that cause hepatitis).
 - ✓ **HPV** (human papilloma virus, papilloma virus, which causes changes eg. Cervical cells).
 - ✓ **EBV** (Epstein-Barr virus, the herpes virus that causes inflammation of the throat lymphoid).

❖ Sign and symptoms

- i. **Fatigue**.
- ii. **Lump or area of thickening** that can be felt under the skin.
- iii. **Weight changes**, including unintended loss or gain.
- iv. **Skin changes**, such as **yellowing, darkening or redness** of the skin, **sores that won't heal**, or **changes to existing moles**.
- v. Changes in **bowel or bladder habits**.

❖ Risk factors

- i. **Alcohol and cancer**
- ii. **HPV and cancer**
- iii. **Tobacco and cancer**
- iv. **Family health history and cancer**

❖ **Diagnosis**

- i. **Biopsy**
 - ii. **Urine and blood tests**
 - iii. **Computerized tomography (CT) scan, bone scan, magnetic resonance imaging (MRI), positron emission tomography (PET) scan, ultrasound and X-ray**
-

❖ **Prevention and control**

- i. **Control of tobacco use and alcohol consumption**
 - ii. **Personal hygiene**
 - iii. **Radiation**
 - iv. **Occupational exposure**
 - v. **Immunization**
 - vi. **Air pollution**
 - vii. **Treatment of pre-cancerous lesions**
 - viii. **Cancer education**
-

❖ **Treatment**

- i. **Surgery with chemotherapy**
- ii. **Radiation therapy**
- iii. **Bone marrow transplant**
- iv. **Immunotherapy**
- v. **Hormone therapy**
- vi. **Drugs :-**
 - ✓ **Gemcitabine**
 - ✓ **Carboplatin**
 - ✓ **Oxaliplatin**

✓ Etoposide

✓ Topotecan



DRUG ADDICTION – DRUG SUBSTANCE ABUSE

- **Drug Abuse** means unnecessary use of too many drugs, the unwarranted use or non-use of any drug, the inappropriate use of drugs and coercive use of drugs.
- **Drug Addiction** means continued use of a substance for a purpose other than food amount to addiction.
- **Drug dependence** means a permanent physiological change causing an individual to persistently crave the consumption of particular substance.

❖ Agent factor :-

- These are the list of drug or substances which can **produce dependency or addiction**.
- They are **alcohol, opioids, cannabinoids, sedatives or hypnotics, cocaine, caffeine and other stimulating agents, hallucinogens, tobacco, volatile solvents and other psycho-active substances**.

❖ CAUSES OF DRUG ADDICTION

- i. **Family history of addiction.**
- ii. **Mental health disorder.**
- iii. **Peer pressure.**
- iv. **Lack of family involvement.**
- v. **Taking highly addictive drugs.**

❖ Stages of addiction

Stage	Description
Stage-1	Curiosity is the motivator
Stage-2	User is thinking more about drugs
Stage-3	User think they drug won't hurt them , Peer groups uses
Stage-4	User uses the drug to avoid being sick

❖ Drugs causes addiction

Example :-

Marijuana, Heroin, Alcohol, Tobacco, LSD, Speedball, MDMA, Ketamine, and Crystal METH.

❖ Side effects

- i. Loss of appetite
 - ii. Headaches
 - iii. Anxiety
 - iv. Elevated blood pressure
 - v. Chest pain
 - vi. Irregular heartbeat
 - vii. Difficulty in urinating
 - viii. Changes in body temperature
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❖ **Prevent and control**

1. Understand the reason why people use drugs and alcohol.

✓ Abusing an addictive prescription medication

✓ Self-medication, genetic and family history

2. Avoid temptation and peer pressure

3. Practice healthier living habits

