

RESPIRATORY INFECTIONS



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Shaping Lives...
Empowering Communities...

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COMMUNICABLE DISEASES

- Communicable diseases also known as **infectious diseases**.
- Its spread from **one person to another person** through a variety of ways that includes: contact with blood, body fluids, breathing in airborne virus, etc.



CLASSIFICATION OF COMMUNICABLE DISEASES

1. Based on causative agent :-

- **Bacterial diseases** – Diphtheria, tetanus, typhoid, TB, cholera, etc.
- **Viral diseases** - Mumps, measles, polio, small pox, chicken pox, rabies, etc.
- **Protozoan diseases** – Malaria, amoebiasis, kala-azar, sleeping sickness, etc.

- **Helminthes diseases** -Taeniasis, ascariasis, filariasis, trichinosis, liver rot, etc.
- **Rickettsia diseases** - Typhus fever, trench fever, Q-fever, Rocky Mountain spotted fever, etc.
- **Spirochetal diseases** - Syphilis.

2. Based on Transmission mode :-

- **Contagious Diseases** – The healthy person gets infected by physical contact with an infected person.

Ex. Measles, chicken pox, small pox, STDs, leprosy, etc.

- **Non-Contagious Diseases** – The healthy person gets infected on coming in contact with infected food, water, air, etc.

Ex. Cholera, typhoid, TB, etc.

- Sometime the microbes gets injected into the body of human being by vector host or carrier such as mosquitoes, rats, etc.

Ex. Malaria, dengue, plague, etc.

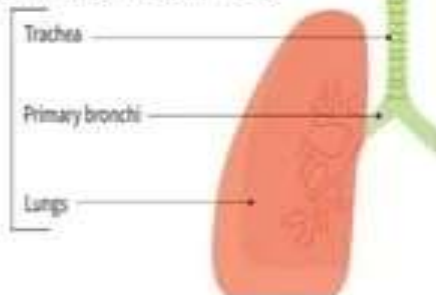
RESPIRATORY INFECTIONS

- Infections of the **sinuses, throat, airways or lungs** are categorized under **respiratory tract Infections (RTIs)**.
- Infections mostly caused by **viruses** and sometimes by **bacteria**.
- **Common cold** is the most widespread respiratory tract infection.
- It categorized into **upper and lower respiratory tract** infections.

UPPER RESPIRATORY TRACT



LOWER RESPIRATORY TRACT



1. Infections of Upper Respiratory Tract :

- These infections affect the nose, sinus and throat.

Ex. Common cold, whooping cough,

- Influenza (deadly viral infection),
- Tonsillitis (inflammation of tonsils and tissues at the back of throat),
- Sinusitis (inflammation of sinuses),
- Laryngitis (inflammation of larynx or voice box).

2. Infections of Lower Respiratory Tract :

- These infections affects the airways and lungs.

Ex. TB (bacterial infection of lungs),

- Bronchitis (inflammation of lining of bronchial tubes),
- Pneumonia (inflammation of three air sacs as they fill with fluid),
- Bronchitis (inflammation of lining of bronchial tubes).

CHICKENPOX

- Chickenpox also known as **Varicella**.
- Its viral infection in which extremely **itchy blisters** develop on entire body.
- Its childhood disease but after the development of chickenpox vaccine it become less common.
- **Causative Agent** : V-Z or *Varicell-zoster* virus.



Epidemiology

- **Source of Infection** : Virus present in the nose and throat secretions, skin lesions, mucous membranes and blood is the sources of infection.
- **Period of Infectivity** : Duration of infection about one week, starting 1-2 days before the appearance of rash and 4-5 days after.
- **Age** : Chickenpox mainly occur in children below the age of 10 years second attack may also occur.
- **Incubation Periods** : 10-21 days.

- **Mode of Transmission** : Chickenpox spread by droplets infections, droplets nuclei and infected by personal contact.
- **Clinical Presentations** : Chickenpox started with slight feverishness, pain in back and legs. Within 24 hrs. Small red papules appear on chest, back, forehead. These pimples turns to blisters and then it dry up with a brown crust.
- **Symptoms** : Nausea, tiredness, vomiting, itchy skin, painful and radish blisters, fluid-filled blisters, mouth soreness, loss of appetite, slight cough and cold.

Diagnosis :

- Early diagnosed by signs and symptoms are characteristic by a rash.
- Conformed by examination of the fluid within the vesicles of the rash .
- Blood test.

Treatment :

- For protective measures patient require to stay home and avoid the spread of infection.
- Maintain good hygiene and daily cleaning of skin with warm water to avoid bacterial infection.
- Paracetamol for reducing fever but not aspirin.
- Antiviral are sometimes used.

Role of Pharmacist in Educating Public

Prevention :-

- Instruct the infected person to **isolate** for a week.
- Patient isolate until all lesions crusted over and dry.
- Used gloves.
- Instruct the family to disinfect the articles contaminated by **nasal** and throat **discharges**.
- Give **Varicella zoster** vaccine within **72** hours of exposure for prevention.

MEASLES

- Measles are also called as **rubeola**.
- Its acute highly **infectious viral** disease.
- Characterized by **fever and small red spots** on entire body.
- Measles is **highly** contagious.
- 90 % of healthy individuals who not been immunized against this disease get infected via shearing space, cloths, dish, etc.
- It mainly occurs in **infants** and **children**.



- **Causative Agent** : *RNA paramyxo* virus.

Epidemiology

- **Source of Infection** : A case of measles.
- **Period of Infectivity** : After the appearance of the rash, measles is infectious 4 days before and 5 days, highly infectious during first few days of illness.
- **Age** : It occurs in children because of passive immunity by maternal antibody.
- **Nutrition** : In malnourished children measles can be very severe and it presents a long period. Severe measles leads to weight loss and more hazardous in malnourished children.
- **Incubation Periods** : 10 – 14 days.

- **Mode of Transmission** : Secretion from nose, throat, respiratory tract are main sources of infection. Virus transmitted by droplet infection, or droplet nuclei or both.
- **Clinical Presentations** : Rapid high fever, sneezing and nasal discharge, rashes on skin later phase Koplik's spots in mucous membrane of buccal cavity. It spread on face, neck and then cover whole body's.
- **Symptoms** : High fever, sneezing, nasal discharge, red eyes, photophobia and weight loss.

Diagnosis :

- RT – PCR (Real-Time Polymerase Chain Reaction).
- Serum sample and throat swab of the infected patients.
- Urine sample
- Genotyping (its identify the type of measles viruses)
- Serological assays like ELISA (Enzyme-linked immunosorbent assays) IgM capture assays.

Role of Pharmacist in Educating Public

Prevention :-

- Prevent by active immunization.
- After rashes appear patient should isolate for week.
- Promote immunization.
- Recommends for the routine childhood vaccination started from 12 to 15 months of age first dose and second dose at the age of 4 to 6 years of age.
- The healthy person who is in contact with the infected person within 48 days of exposure.

RUBELLA / GERMAN MEASLES

- **Rubella** is also known as **distinctive red rash**.
- Its highly infectious virus.
- **Causative Agent** : *Rubella* virus.



Epidemiology

- **Source of Infection** : Virus of **Togaviridae virus** family causes measles and spread via direct contact and through air.

- **Nutrition** : Death occurring due to deficiency of vit. A people suffering from measles.
- **Incubation Period** : 10 -12 days.
- **Mode of Transmission** : Rubella virus is highly contagious and spread through close contact with infected or through air via droplets. It also transmitted from a pregnant women to fetus.
- **Clinical Presentations** : Sign and symptoms generally appear between 2-3 weeks after exposure. Headache, fever, runny nose, enlarge the lymph nodes and rashes on skin.

- **Symptoms** : Fever, runny nose, headache, inflamed and red eyes, pink rashes on skin and joint pain.
- **Diagnosis** : Serological assays like ELISA, IgM assay.
- Collect throat, urine, or blood samples to test for the virus.

Role of Pharmacist in Educating Public

Prevention :-

- **MMR** Vaccine is prevent from rubella.
- Pharmacist combine rubella, measles and mumps known as **varicella**.
- Its given to children between 12-15 months of age.

MUMPS

- Mumps is a **viral infection** it mainly occurs in **salivary glands** present near ears.
- It causes **swelling** of one or both of these **salivary (parotid) glands**.
- **Hearing loss** is serious **complication** in mumps.
- There is not any specific **treatment** is available.
- **Causative Agent** : **Paramyxo** viruses.



Epidemiology

- **Source of Infection** : Patient suffering from mumps (clinical) and sub-clinical.
- **Age and Sex** : Common in age group 5-9 years and affects both the sexes.
- **Period of Infectivity** : The disease remains infectious 6 days before the symptoms and swelling of parotid glands diminish.
- **Incubation Period** : 2-3 weeks.
- **Mode of Transmission** : Mumps spreads through direct contact with saliva or respiratory droplets from the mouth, nose, coughing, talking, sharing items such as water bottles, cups and participating in close-contact activities.

- **Clinical Presentations** : Mumps is characterized by puffy cheeks and tender, swollen jaw. Symptoms of mumps observed in 16-18 days of infection.
- **Sign and Symptoms** : Fever, headache, swollen jaw, muscle aches, tiredness and loss of appetite.
- **Diagnosis** : Taking swab inside of the cheek or throat (RT-PCR) and blood test.
- **Treatment** : Analgesics for pain, Antipyretics for fever, adequate fluid for prevention of dehydration from fever and anorexia.
- Liquid or semisolid are suggested

Role of Pharmacist in Educating Public

Prevention :-

- Vaccination : MMR vaccine dose of ml in intramuscular.
- Educate, promote and provide vaccinations.
- Guide people regarding appropriate hand hygiene and general illness management.
- Pharmacist should stay updated about current cases of mumps and sign and symptoms.
- Recommended for isolation for appropriate durations (10 days).
- Provide education regarding complications.

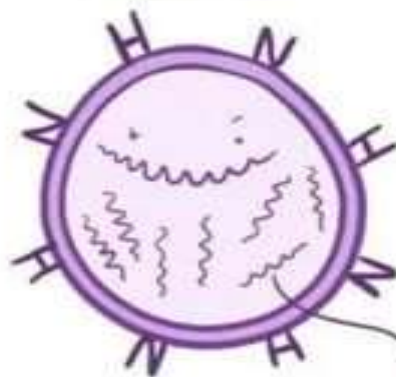
INFLUENZA

- Influenza is an **infectious disease** caused by **RNA virus** belonging to **Orthomyxoviridae** family.
- Generally referred to as **flu**.
- Influenza is characterised by **fever, pain and general weakness**.
- **Causative Agent** : **Influenza** virus and having three types :
 1. Influenza A virus – It infects birds, human beings and other mammals.
 2. Influenza B virus – It infects only human beings.
 3. Influenza C virus – It infects only human beings.

INFLUENZA ~ COMMON INFECTIOUS DISEASE

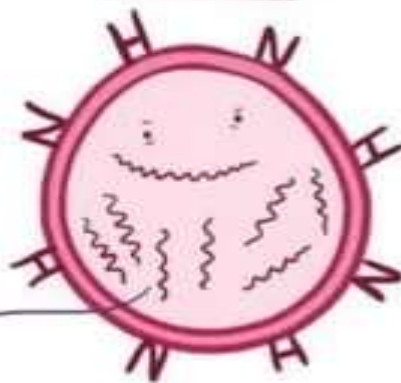
"THE FLU" FAMILY: ORTHOMYXOVIRIDAE

TYPE A



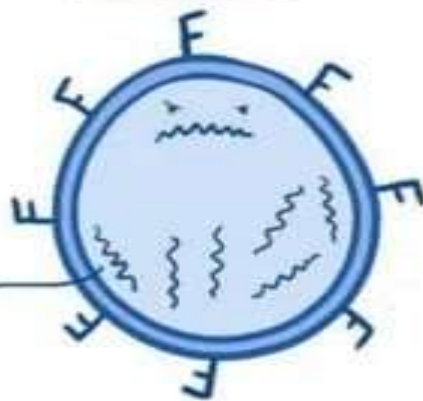
8 RNA SEGMENTS

TYPE B



7 RNA SEGMENTS

TYPE C



Epidemiology

- **Source of Infection** : Cases (clinical), sub-clinical cases.
- **Age and Sex** : All ages and both sexes are vulnerable.
- **Period of Infectivity** : Spread the infections to others up to 7 days from the beginning of the disease.
- **Incubation Period** : 18-72 hours.

- **Mode of Transmission** : The infection spread via droplets infection or droplets nuclei, sneezing, coughing or talking. Viruses enter via respiratory tract.

- **Clinical Presentations** : Respiratory tract is firstly affected by the attack of influenza virus and leads to disease or infection.
- **Sign and Symptoms** : Fever, headache, cough, sneezing, soreness of throat, body ache, vomiting, diarrhea and lethargy.
- **Diagnosis** : RT-PCR, **viral culture**, **serology**, immunofluorescence assays, and rapid molecular assays.
- **Treatment** : Acetaminophen, ibuprofen for controlling fever, Antiviral drugs, if necessary antibiotics are also given.

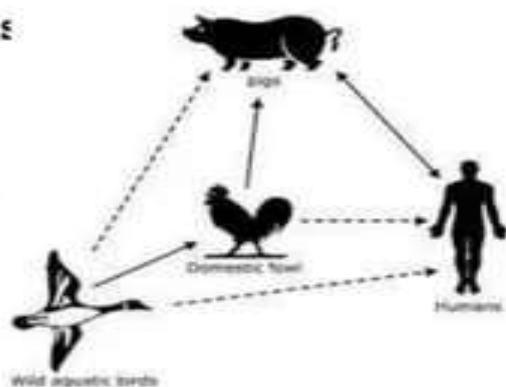
Role of Pharmacist in Educating Public

Prevention :-

- Pharmacist should recommended for vaccines.
- Drugs to prevent the transmission of influenza virus are live attenuated vaccine, split virus vaccine, recombinant vaccine.
- A prophylactic drugs such as Amantadine.

AVIAN-FLU (BIRD FLU)

- The disease occurs due to **infection with avian (bird) influenza (flu) Type –A viruses** is termed as **avian influenza**.
- Viruses occur **naturally** among wild **aquatic birds**.
- **Humans** are not affected by this **viruses** but some **sporadic** human infected with **avian flu**.
- **Causative Agent** : **Influenza** virus.
- **Dozen** types causes **bird flu** and **H5N1** and **H7N9** **infected humans**.



Epidemiology

- **Source of Infection** : Bird flu occurs naturally in wild water fowl and spread into domestic poultry like chickens, ducks, geese. It spread through contact with an infected birds faces or secretions from its nose, mouth or eyes.
- **Incubation Period** : 2 – 17 days.
- **Infective Period** : 3-5 days.
- **Mode of Transmission** : Bird flu spreads by close contact with dead or alive infected bird. It includes touching infected birds, dropping or bedding and killing or preparing infected poultry for cooking.

- **Clinical Presentations** : Extremely high temperature, feeling hot, shivery, muscle pain, headache and cough.
- **Signs and Symptoms** : The early symptoms include diarrhea, sickness, stomach pain, chest pain, bleeding nose, gums and conjunctivitis.
- **Diagnosis** : RT-PCR, taking swab of throat and blood test.
- **Treatment** : Antiviral drugs such as Oseltamivir, Zanamivir reduced the severity of disease.

Role of Pharmacist in Educating Public

Prevention :-

- FDA approved a vaccine and Limited protection.

Recommendations for Travelers :-

1. **Avoid Domesticated Birds-** People should avoid rural areas, small farms and open-air markets.
2. **Wash Hands-** Washed hands with alcohol (60%) based sensitizer while travelling.
3. **Ask about Flu Shot-** Flu shot before travelling it reduce risk infection.

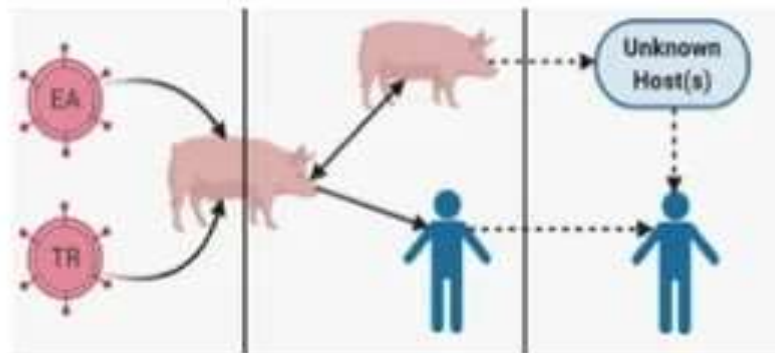
Poultry and Eggs Products :-

- **Cook Thoroughly** : Heat before eat and cooked until juice run clear (74 degree C).
- **Avoid Cross-Contamination** : Hot water should used for washing, cutting.
- **Steer Clear of Raw Eggs** : Eggshells washed and undercooked eggs avoided.

H1N1 (SWINE FLU)

- Its viral infection which infects pigs.
- Its quite rare in humans.

- **Causative Agent : Influenza A** viruses of **Orthomyxoviridae** family.



Epidemiology

- **Source of Infection :** H1N1 infect the cells lining of nose, throat and lungs in human body. Enters through inhalation of contaminated droplets.

- **Incubation Period** : 1 – 4 days.
- **Contagious Period** : 5-7 days after symptoms develop.
- **Nutrition** : Sufficient amount of vitamin C should taken for keep away H1N1. Citric fruits, spinach, etc should take.
- **Mode of Transmission** : H1N1 virus spread through pigs, due to closed contact from object.
- **Clinical Presentation** : In severe case it leads to respiratory failure and death.
- **Sign and Symptoms** : Body aches, cough, chills, headache, fever, sore throat, tiredness, vomiting and diarrhoea.

- **Diagnosis** : RT-PCR, taking swab of throat and blood test.
- **Treatment** : Antiviral drugs such as Oseltamivir, Zanamivir reduced the severity of disease. Cough medicine used to easier to clear the airways, Analgesic to relives pain and nonsteroidal anti-inflammatory drug used to reduce inflammation fever and pain.
- **Prevention** : Prevention of swine flu by using disinfectants, regulating temperature, preventing the transfer of swine flu to human beings and also prevent from human-to-human transmission.

Role of Pharmacist in Educating Public

Prevention :-

- Should using mask while coughing and sneezing.
- Should wash their hands with soap and water.
- People avoid touching their nose, mouth and avoid spread of germs.
- Avoid contact with sick people.
- Self-Isolate the infected people.

SARS (SEVERE ACUTE RESPIRATORY SYNDROME)

- It's a new strain of coronavirus and genetic structure is different from previous corona virus.
- Its serious disease which affects your ability to breath.
- **Causative Agent : *Corona virus.***



Epidemiology

Source of Infection : SARS virus gets transmitted through respiratory droplets produced when an infected person coughs or sneezes.

Incubation Period : 2 – 7 days and it may extend up to 14 days.

Mode of Transmission : 1. Uninfected individuals can get infected by :

- a) **Deposition of Respiratory Droplets :-** Droplets released by infected individual after a cough or sneeze get transmitted by air and deposit on mucous membranes of mouth, nose or eyes.
- b) **Surface Contact :** Healthy person get infected on coming contact with surfaces or objects contaminated with infected droplets.

2. SARS transmitted by person-person contact, person living with infected person or taking care with infected one.

Clinical Presentation :

Initial Symptoms :- Cough, difficulty in breathing, fever (38 degree C), etc.

Common Symptoms :- Chill, cough, fever, headache, muscle pain.

Less Common Symptoms :- Cough with phlegm, diarrhoea, sore throat, nausea, vomiting, runny nose, etc.

- **Diagnosis** : RT-PCR and serology.
- **Treatment** : No specific treatment is available so supportive treatment is given. Tracheal intubation to open the airways, oxygen therapy to provide extra oxygen to eliminate the breathing problems.
- Antibiotics act against bacteria and drugs are used such as ampicillin, tetracycline, etc. antiviral also suggest like ribavirin.

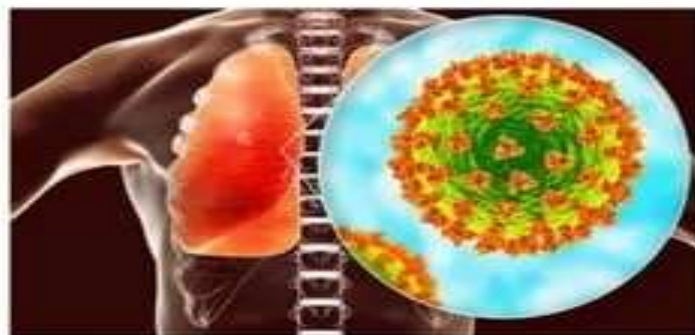
Role of Pharmacist in Educating Public

Prevention :-

- Isolate patient in hospitals and community.
- Provide protection to the medical and paramedical staff while handling patients.
- Provide timely report and accurately.
- Maintain proper hygienic conditions.
- Washing the hands and used mask.

MERS (MIDDLE EAST RESPIRATORY SYNDROME)

- MERS affects the respiratory system severe symptoms may causes death.
- **Causative Agent** : MERS is a strain of corona virus known as *MERS-CoV*.



Epidemiology

- **Source of Infection** : MERS-CoV is zoonotic virus that transmit from animals to humans.
- **Age** : 50-59 age groups having highest risk of infections. 30-39 years of age group mostly risk for infection.
- **Infective Periods** : Contagenious period is not known but is actively present in the body.
- **Incubation Period** : 2-14 days.
- **Mode of Transmission** : MERS-CoV spreads from infected person coughing and close contact with infected person.

- **Clinical Presentation** : MERS it does not produce any symptoms in some cases.
- **Sign and Symptoms** : Fever, coughing, difficulty in breathing, fever, diarrhoea, sore throat, nausea, vomiting, runny nose, blood in cough, etc.
- **Diagnosis** : RT-PCR, serology test, chest X-ray, nasal or throat swab.
- **Treatment** : IV fluids for keep body hydrated, ibuprofen to reduce fever.

Role of Pharmacist in Educating Public

Prevention :-

- Hands should be washed with sanitizer, and soap.
- Proper respiratory hygiene measures.
- Nose, eyes, mouth should not be touched without washing.
- Surface and object should be cleaned with disinfectant.

Prevention Human-to-Human Transmission :-

- Used mask, gloves, eye protection, long sleeved gown while handling infected persons.
- Isolate the patients.

COVID-19

- Covid-19 caused by novel coronavirus, now called Severe Respiratory Syndrome Coronavirus 2.
- Its highly contagious and spread direct contact with droplets, or infected person.
- **Causative Agent : *Severe Respiratory Syndrome Coronavirus 2* (SARS-CoV-2).**



Epidemiology

- **Source of Infection** : Spread by droplets of discharge or saliva, cough and sneezing.
- **Age and Sex** : Older and underlying medical problem are at more risk of developing serious illness.
- **Nutrition** : Meat eat twice in week and foods from animal sources , beans, fruits should take.
- **Incubation Period** : 1-14 days.
- **Mode of Transmission** : Covid-19 virus spread by direct contact with respiratory droplets of infected person, by touching contaminated surface.

- **Clinical Presentation** : Covid-19 affects different people in different ways. Usually people with mild to moderate illness can recover at home.
- **Sign and Symptoms** : Fever, dry cough, tiredness, pain, sore throat, loss of smell and taste, headache, rash on skin, diarrhoea.
- **Serious Symptoms** : Difficulty in breathing, chest pain and loss of speech or movement.
- **Diagnosis** : RT-PCR, taking swab of throat, Rapid diagnostic test, chest X-ray and blood test.
- **Treatment** : Antiviral drug like remdesivir, paxlovid, monoclonal antibodies like imdevimb, immunomodulators and Covid-19 vaccine.

Role of Pharmacist in Educating Public

Prevention :-

- Wear a mask.
- Stay 6 feet away from others.
- Get vaccine.
- Wash hands.
- Avoid crowds an poorly ventilated spaces.
- Clean and disinfectant are used.

DIPHTHERIA



- Diphtheria is a upper respiratory tract disease.
- Characterised by sore throat, inflammation of mucous membrane of throat, pharynx, tonsil and nose.
- Its common in children but after development of vaccine its less common.
- **Causative Agent : *Corynebacterium diphtheriae*** it is gram +ve bacteria in rod-shaped.

Epidemiology

- **Source of Infection** : Source of infection may be patient or carrier and carriers are 5-8 years old.
- **Age and Sex** : It occur in children between 1-5 years old and newborns receive from mothers.
- **Infective Material** : Nose and throat contains Diphtheria bacilli.
- **Incubation Period** : 2-5days.
- **Mode of Transmission** : Diphtheria transmitted by infected droplets, carrier.

- **Clinical Presentation** : The grey or yellow coloured patches appeared on membrane of upper respiratory tract such as tonsils, larynx and pharynx.
- **Sign and Symptoms** : Fever, fatigue, sore throat, bluish skin, etc.
- **Diagnosis** : Swab the back of the throat or nose, physical examination to check for swollen lymph nodes and sample of the affected tissue.
- **Treatment** : The first step of treatment is an antitoxin injection to counteract the toxin produced by the bacteria. Antibiotics, such as erythromycin or penicillin, to help clear up the infection.

Role of Pharmacist in Educating Public

Prevention :-

- Pharmacist should guide the patient.
- Instruct infected child to stay home at least for 15 days.
- Educated about DPT vaccine.
- Maintain good hygiene.

WHOOPING COUGH / PERTUSSIS

- Whooping cough is highly infectious disease.
- It mainly affects children.
- Whooping cough occurs in three stages:
 - i. Catarrhal Stage** : Last for 10 days.
 - ii. Paroxysmal Stage** : Last for 2-4 weeks.
 - iii. Convalescent Stage** : Last for 1-2 weeks.



- **Causative Agent** : *Bordetella pertussis* is a gram -ve bacillus.

Epidemiology

- **Source of Infection** : Infection in nose and throat secretions.
- **Age and Sex** : It occur in infants and affects all the age groups.
- **Incubation Period** : 7-14days.

- **Mode of Transmission** : Infected person is main source of disease which spread droplets infection. It also spread indirectly by touching discharge of infected person.

- **Clinical Presentation** : The uncontrollable and violent coughing and sometimes difficulty in breathing.
- **Sign and Symptoms** : Mild fever, irritating cough and inspiratory whoop.
- **Diagnosis** : Bacteriological examination of nose and throat, sample of mucus (with a swab or syringe filled with saline) from the back of the throat through the nose, Blood test, chest X-ray to check for the presence of inflammation or fluid in the lungs and Physical examination.
- **Treatment** : Antibiotics kill the bacteria causing whooping cough and help speed recovery such as azithromycin, erythromycin.

Role of Pharmacist in Educating Public

Prevention :-

- Instruct to isolate patient.
- Educate about the DPT vaccine.
- Wearing mask and used sanitizers.
- Maintain good hygiene.
- Awareness about the whooping cough.

MENINGOCOCCAL MENINGITIS

- It affects the brain membrane and causes severe brain damage.
- Meningitis is characterized by inflammation of the membranes around the brain or spinal cord. This inflammation can begin suddenly (acute) or develop gradually (sub acute).
- **Causative Agent : *Neisseria meningitides* (Nm).**



Epidemiology

- **Source of Infection** : Inhalation of respiratory or throat secretions via saliva, coughing, close contact spread the bacteria.
- **Age and Sex** : It affects anyone of any age, but mainly affects babies, preschool children and young people.
- **Incubation Period** : 2 - 10 days.
- **Mode of Transmission** : Meningococcal meningitis is usually spread through contact with the saliva or nasal secretions of an infected person. Spread by smoking, prolong closed contact or living with a carrier.

- **Clinical Presentation** : Meningococcal meningitis symptoms differ from person to person general poor feeling, sudden high fever, severe headache.
- **Sign and Symptoms** : Nausea, vomiting, confusion, mental changes, irritability, turning pale or blue, shivering, cold hands and feet, etc.
- **Diagnosis** : Its difficult to diagnose, Cerebrospinal fluid test collect samples of blood or cerebrospinal fluid and Blood tests.
- **Treatment** : The third-generation cephalosporin, Penicillin G, ampicillin, chloramphenicol, fluoroquinolone, are alternatives therapies. Chemoprophylactic antimicrobials most commonly used as prophylaxis meningococci include rifampin, quinolones, ceftriaxone.

Role of Pharmacist in Educating Public

Prevention :-

- Educated about the polysaccharide vaccine are safe and effective in children as well as adults.
- Conjugate vaccine are used in prevention and outbreak response.
- Protein based vaccine are active against N. meningitides B.
- Chemoprophylaxis reduces the risk of transmission.

ACUTE RESPIRATORY INFECTIONS (ARI)

- ARI causes inflammation in any part of the respiratory tract, starting from nose to alveoli.
- Its classified into Acute Upper Respiratory Infection (AURI) and Acute Lower Respiratory Infection (ALRI).
- **Causative Agent : Adenoviruses**
- It includes rhinoviruses, influenza virus, measles, mumps, adenoviruses and corona virus.



Epidemiology

- **Contagious Period** : Period ranges between few days before sign or symptoms appear. Green or yellow discharge is common from nose.
- **Age and Sex** : Females are more affected as compare to male.
- **Incubation Period** : 2 – 14 days.
- **Mode of Transmission** : All causative organisms of acute respiratory infections are transmitted through airborne route. Microbes are not survive outside the respiratory tract and it transferred person-to-person contact.

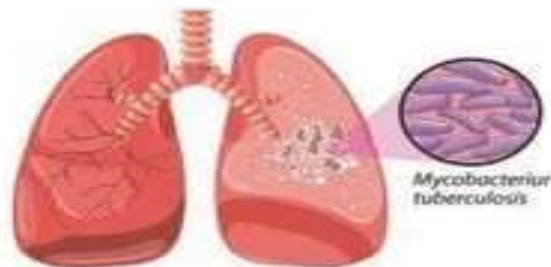
- **Clinical Presentation** : ARI characterized by runny nose, cough some children may get pneumonia which is major cause of death.
- **Sign and Symptoms** : Sore throat, nose, cough, fever, cold, difficulty in breathing and ear problem.
- **Diagnosis** : RT-PCR, Direct fluorescent antibody testing, physical examination, CT scan, sputum test.
- **Treatment** : Analgesics like acetaminophen and NSAIDs ibuprofen can help reduce fever, aches and pain. Antihistamines such as diphenhydramine helps in decreasing nasal secretion cough medication to reduce cough, steroids.

Role of Pharmacist in Educating Public

Prevention :-

- Improved living conditions, better nutrition.
- Immunization.
- Proper hygiene should be maintained.
- To create education, awareness about ARI.

TUBERCULOSIS (TB)



- TB is highly infectious diseases.
- Characterised by inflammation in the lungs and other body parts.
- When infected person coughing, sneezing, talking with healthy individual than disease is spread.
- **Causative Agent : *Mycobacterium tuberculosis*.**

Epidemiology

- **Source of Infection** : The sources of infection are,

1. **Human source** – The patient whose sputum is positive for Tubercle bacilli is the main source of infection

2. **Bovine Source** – Infected milk and milk products are major source of infection.

- **Age and Sex** : It affects any age group and occur mostly in males as compare to females.
- **Social Factors** : Tuberculosis more commonly occurred in who are malnourished, live in over crowed houses and poor hygiene maintained.
- **Period of Infectivity** : The period of infectivity ranges from several months to a few years.

- **Mode of Transmission** : The sputum spitted out from TB infected person, spread from droplet infection, directly contact with infected person. Other factors spread the TB is,
 - Taking unpasteurized milk from cow infected by TB.
 - Unhygienic condition, poor ventilation.
- **Clinical Presentation** : Coughing from long time, weight loss, fever in evening, anorexia.
- **Diagnosis** : Mantox Tuberculin Skin test, blood test, X-rays, CT scans, sputum and lung test.
- **Treatment** : Isoniazid, rifampin, streptomycin, pyrazinamide.

Role of Pharmacist in Educating Public

Prevention :-

- Survey and case-finding programmes should be conducted.
- Examined and diagnosis of infected patients.
- Vaccination should be given.
- People should be educated regarding the risk factors of TB.
- Dispense anti-TB medications.
- Framework should be developed to track, improve coordination.

EBOLA VIRUS



- Ebola is rare but deadly viral infection.
- Having common symptoms such as fever, diarrhoea, bleeding inside and outside the body.
- It also damage organs and spread through body and reduce blood-clotting cells.

▪ **Causative Agent :** Ebola Virus Disease (EVD) caused by group of viruses within Ebola genus :

1. Ebola virus (*Zaire ebolavirus species*)
2. Sudan virus (*Sudan ebolavirus species*)
3. Tai Forest virus (*Tai Forest ebolavirus species*)
4. Bundibugyo virus (*Bundibugyo ebolavirus species*)
5. Reston virus (*Reston ebolavirus species*)
6. Bombali virus (*Bombali ebolavirus species*).

Epidemiology

- **Source of Infection** : Infected animal transmit the virus to other animals (monkey, humans).
- **Contagious Period** : 21-42 days after symptoms.
- **Age and Sex** : Risk of infection lowest in 5-14 years aged children, higher in 2 years below and adults.
- **Incubation Period** : 2 – 21 days.
- **Mode of Transmission** : Ebola virus get spread by direct contact through broken skin, mucous membrane, through blood or body fluids, using infected objects, semen of man and by STDs.

- **Clinical Presentation** : Ebola virus damage organs and spread through body and reduce blood-clotting cells. Includes fever, fatigue, muscle pain, headache, sore throat, etc.
- **Sign and Symptoms** : The serious symptoms are vomiting, diarrhoea, rashes, impaired kidney and liver functions, internal and external bleeding, etc.
- **Diagnosis** : Polymerase chain reaction (PCR), ELISA, serum neutralization test, blood and serum test.
- **Treatment** : Antibiotic like Inmazeb (atoltivimab, maftivimab and odesiviman-ebgn) a combination of drugs, Ansuvimab-zykl (Ebanga) is monoclonal antibody injection to stop the entry of virus into cell. fluids and electrolytes are also gives.

Role of Pharmacist in Educating Public

Prevention :-

- Educate about the vaccination, sign and symptoms of Ebola.
- People should aware of the risk factors of Ebola infection.
- Protective measures should taken.

Reduce the Risk :

- To reduce the risk of Wildlife-to-human transmission.
- Reduce the risk of human-to-human transmission.
- Reduce the risk of sexual transmission.

THANK YOU