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Vivek Jain

JAYPEE

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CHAPTER

5

Communicable and Non-communicable Diseases

COMMUNICABLE DISEASES

CHANGES IN DISEASE PATTERN – TOP 10 CAUSES

DALYs Loss (Global)	Deaths (Global)	Deaths (India)
1. Covid-19 disease	1. Ischemic heart disease (IHD)	1. Ischemic heart disease (IHD)
2. Ischemic heart disease (IHD)	2. Covid-19 disease	2. COPD
3. Stroke	3. Stroke	3. Stroke
4. Lower respiratory infections	4. COPD	4. Diarrhoel diseases
5. Neonatal diseases	5. Lower respiratory infections	5. TB
6. Back pain, Neck pain	6. Trachea, Bronchus, Lung cancers	6. Neonatal diseases
7. Diabetes	7. Alzheimer's and other dementias	7. Lower respiratory infections
8. COPD	8. Diabetes	8. Diabetes
9. Diarrhoeal diseases	9. Renal diseases	9. Liver cirrhosis
10. Road injury	10. TB	10. Falls

GENERAL EPIDEMIOLOGY

Period of Communicability

- *Chickenpox:* 1–2 days before to 4–5 days after appearance of rash[Q]
- *Measles:* 4 days before to 5 days after appearance of rash[Q]
- *Rubella:* 7 days before symptoms to 7 days after appearance of rash
- *Mumps:* 4–6 days before symptoms to 7 days thereafter
- *Influenza:* 1–2 days before to 1–2 days after onset of symptoms
- *Diphtheria:* 14–28 days from disease onset[Q]
- *Pertussis:* 7 days after exposure to 3 weeks after paroxysmal stage
- *Meningococccus:* Until absent from nasal and throat discharges[Q]
- *Tuberculosis:* As long as not treated
- *Poliomyelitis:* 7–10 days before and after onset of symptoms[Q]
- *Hepatitis A:* 2 weeks before to 1 week after onset of jaundice
- *Hepatitis B:* Till disappearance of HBsAg & appearance of anti-HBs[Q]
- *Tetanus:* None[Q]

KEY POINTS

Period of Infectivity:
- Chickenpox: 1–2 days before to 4–5 days after appearance of rash
- Measles: 4 days before to 5 days after appearance of rash

Common Gestational Periods for Vertical Transmission of Diseases

- *Congenital Varicella:* First trimester[Q]
- *Congenital Rubella:* First trimester[Q]
- *Congenital Parvovirus:* Second Trimester[Q]
- *Congenital Syphilis:* Third trimester[Q]
- *Congenital Toxoplasmosis:* Third trimester
- **Congenital Hepatitis B:** Third trimester[Q]
- *Congenital CMV:* Third trimester[Q]
- **Congenital HIV:** During delivery[Q]

KEY POINTS

MC time of Vertical transmission
Congenital Rubella: First trimester

- *Congenital Hepatitis C:* During delivery[Q]
- *Congenital Herpes:* During delivery[Q]

Incubation Periods of Common Diseases

Disease	Causative organism	IP
Smallpox	Variola virus	7–14 days
Chickenpox	Human (alpha) herpes virus 3[Q]	14–16 days
Measles (Rubeolla)	RNA paramyxovirus[Q]	10–14 days[Q]
Rubella (German Measles)	RNA Togavirus[Q]	14–21 days
Mumps	RNA Myxovirus	14–21 days
Influenza	Orthomyxovirus	18–72 hours[Q]
Diphtheria	Corynebacterium diphtheriae	2–6 days[Q]
Pertussis (Whooping cough)	Bordetella pertussis	7–14 days
Meningococcal meningitis	Neisseria meningitis	3–4 days
SARS	Corona virus[Q]	3–5 days
Tuberculosis	Mycobacterium tuberculosis	Weeks–years
Poliomyelitis	Poliovirus	7–14 days[Q]
Hepatitis A	Enterovirus 72[Q] (Picornavirus)	15–45 days[Q]
Hepatitis B	Hepadna virus	45–180 days[Q]
Hepatitis C	Hepacivirus	30–120 days
Hepatitis D	Deltavirus	30–90 days
Hepatitis E	Calcivirus	21–45 days
Cholera	Vibrio cholerae	1–2 days[Q]
Typhoid fever	Salmonella typhi	10–14 days[Q]
Staphylococcal food poisoning	Staphylococccus aureus	1–6 hours[Q]
Ascariasis	Ascaris lumbricoides	2 months
Ancylostomiasis (Hookworm)	A. duodenale	5 weeks–9 months
Guinea worm (Dracunculiasis)	Dracunculus medinensis	1 year
Dengue	Arbovirus	3–10 days[Q]
Malaria	Plasmodium vivax	8–17 days
	Plasmodium falciparum	9–14 days[Q]
	Plasmodium malariae	18–40 days
	Plasmodium ovale	16–18 days
Lymphatic filariasis	Wuchereria bancrofti[Q]	8–16 months[Q]
Rabies	Lyssavirus type 1 (Rhabdovirus[Q])	3–8 weeks
Yellow fever	Flavivirus fibricus[Q]	2–6 days[Q]
Japanese encephalitis	Group B arbovirus (Flavivirus)	5–15 days
KFD	Arbovirus (Flavivirus)	3–8 days
Chikungunya fever	Chikungunyavirus (Arbovirus A)	4–7 days
Leptospirosis	Leptospira interrogans	4–20 days
Bubonic plague	Yersinia pestis	2–7 days
Pneumonic plague	Yersinia pestis	1–3 days
Septicemic plague	Yersinia pestis	2–7 days
Scrub typhus	Rickettsia tsutsugamushi[Q]	10–12 days

Contd...

KEY POINTS

Measles
(Rubeolla) RNA paramyxovirus[Q]
IP 10–14 days[Q]

KEY POINTS

Hepatitis A
Enterovirus 72[Q] (Picornavirus) IP 15–45 days IP

KEY POINTS

Hepatitis B Hepadna virus 45–180 days IP

KEY POINTS

Staphylococcal food poisoning
Staphylococccus aureus 1–6 hours IP

KEY POINTS

Yellow fever
Flavivirus fibricus IP 2–6 days

KEY POINTS

Ebola virus IP 2–21 days

Contd...

Disease	Causative organism	IP
Q fever	Coxiella burnetti[Q]	2–3 weeks
Taeniasis (Tapeworms)	T. solium, T. saginata	8–14 weeks
Leishmaniasis (Kala azar)	L. donovani	1–4 months
Trachoma	Chlamydia trachomatis	5–12 days
Tetanus	Clostridium tetani	6–10 days[Q]
Yaws	Treponema pertenue[Q]	3–5 weeks
HIV/AIDS	HIV/HTLV–III/LAV	Months–10 years[Q]
Swine flu	H1N1 Type A Influenza	1–4 days[Q]
Crimean Congo Fever	Nairovirus[Q]	1–3 days
NIPAH Virus	Hendra/Henapi virus[Q]	14–16 days
Ebola Virus	Ebola virus	2–21 days
Anthrax	Bacillus anthracis	1–7 days
Brucellosis	Bacillus melitensis	5–60 days
COVID-19	SARS-CoV-2	1–14 days

Important Human Parasites

Parasite	Causative organism
Roundworm	Ascaris sp. Ascaris lumbricoides[Q]
Balantidiasis	Balantidium coli
Tapeworm	Taenia solium/saginata
Coccidia	Cryptosporidium
Guinea worm	Dracunculus medinensis[Q]
Amoebiasis	Entamoeba histolytica
Pinworm	Enterobius vermicularis[Q]
Liver fluke	Fasciola hepatica[Q]
Giardia	Giardia lamblia
Hookworm	Necator americanus[Q]
Head louse	Pediculus humanus
Body louse	Pediculus humanus corporis
Crab louse	Phthirus pubis
Scabies	Sarcoptes scabiei[Q]
Strongyloidiasis	Strongyloides stercoralis
Toxocariasis	Toxocara canis, Toxocara cati
Toxoplasmosis	Toxoplasma gondii
Trichinosis	Trichinella spiralis
Whipworm	Trichuris trichiura, Trichuris vulpis

Host of a Disease

- HOST: A person or other animal, including birds & arthropods, that affords subsistence or lodgement to an infectious agent under natural (as opposed to experimental) conditions
  - *Primary (definitive) host:* Host in which parasite attains maturity or passes its sexual stage[Q]
  - *Secondary (intermediate) host:* Host in which parasite is in larval or asexual stage[Q]

Disease	Parasite	Host	
		Primary	Secondary
Malaria[Q]	Plasmodium	Anopheles	Man
Tapeworm	Taenia solium	Man	Pigs
Tapeworm	Taenia saginata	Man	Cattle
Guinea worm[Q]	Dracunculus medinensis	Man	Cyclops
Filariasis	Wuchereria bancrofti	Man	Culex
Hydatid Disease[Q]	Echinococcus	Dog	Sheep, Cattle, Man
Sleeping sickness	Trypanosomes	Man	Tse tse fly

- *Obligate host:* Only Host for a Parasite, e.g., Man in Measles, Man in Typhoid Fever[Q]
- *Transport host:* A carrier in which the organism remains alive but does not undergo development
- *Paratenic host:* Is similar to an intermediate host, only that it is not needed for the parasite's development cycle to progress
  - *Difference between a paratenic and reservoir host:* Latter is a primary host, whereas paratenic hosts serve as "dumps" for non-mature stages of a parasite which they can accumulate in high numbers
- *Dead-end host:* Is an intermediate host that does generally not allow transmission to the definite host, thereby preventing the parasite from completing its development. For example, humans are dead-end hosts for Echinococcus canine tapeworms

Arboviral Infections in India[Q]

Group A (Alpha viruses)	Others
Sindbis	Sandfly fever
Chikungunya	Umbre
Group B (Flaviviruses)	Chandipura
JE	Ganjam
KFD	Minnal
Dengue	Dhori
West Nile fever	African Horse sickness

COVID-19 DISEASE

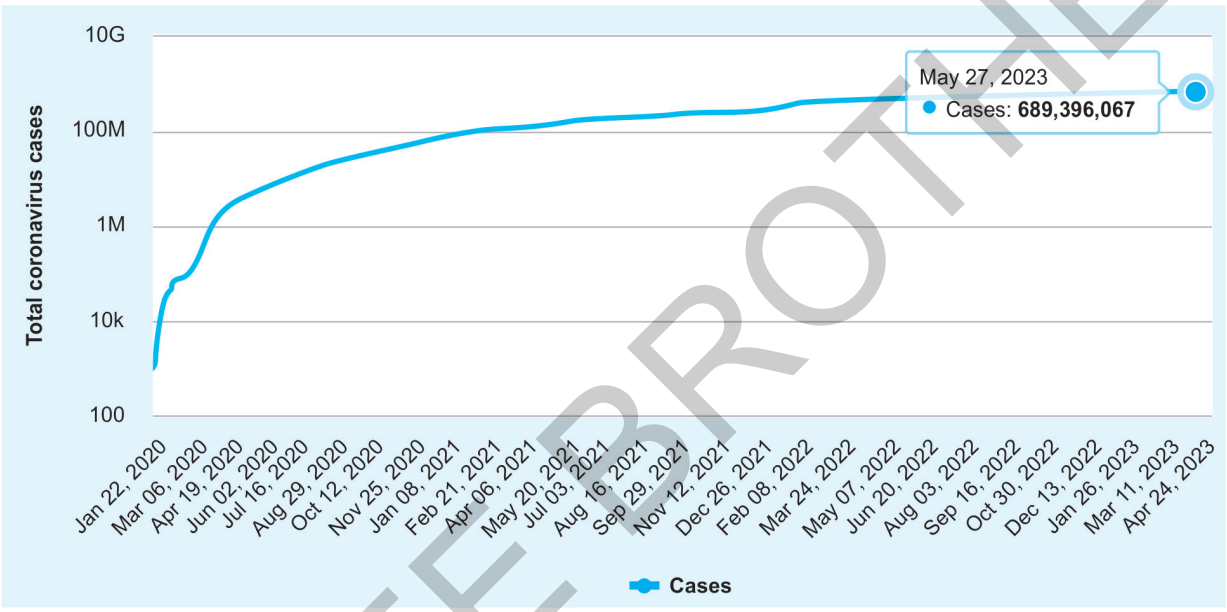
COVID-19 Timeline

- *Global*
  - *Dec 2019:* Wuhan Municipal Health Commission, Hubei Province China, reported a cluster of cases of Pneumonia of unknown origin (PUO)
  - *07 Jan 2020:* Chinese authorities identifies "novel coronavirus, nCoV"
  - *13 Jan 2020:* A case of novel coronavirus reported in Thailand, the first recorded case outside of China
  - *30 Jan 2020:* WHO declares novel coronavirus outbreak as PHEIC (Public Health Emergency of International Concern)
  - *11 Feb 2020:* WHO declares the new coronavirus disease to be called COVID-19; New coronavirus was named SARS-CoV-2
  - *11 March 2020:* WHO declares COVID-19 as a Global Pandemic
  - *08 Dec 2020:* First dose of Covid vaccine administered globally (in United Kingdom)

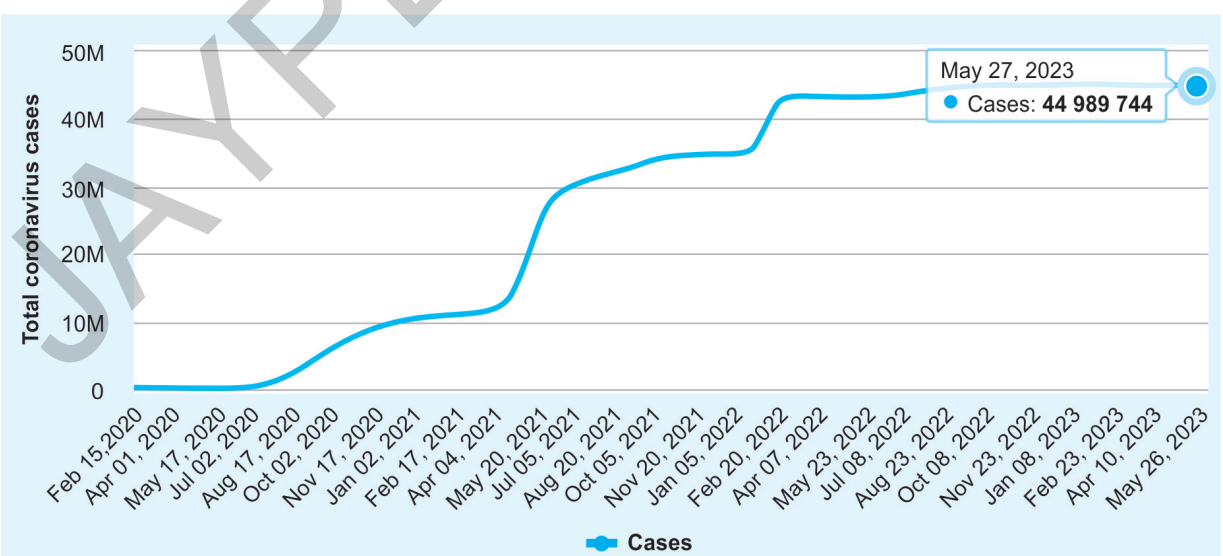
- *Indian*
  - *30 Jan 2020:* India reports its First cases of COVID-19 from Thrissur, Kerala
  - *25 March 2020:* Nation-wide lockdown imposed
  - *16 Jan 2021:* First dose of Covid vaccine administered in India; India begins one of the world's biggest COVID-19 vaccination programmes
  - *Dec 2021:* DGCI approves Covaxin for use in 12-18 years old children
  - *Dec 2021:* Booster drive, 15-18 years old children vaccination drive announced

COVID-19 Situation Update

- *Global Situation Update [as on 31st March 2025]*
  - 778 million cases, 7.10 million deaths, 13.9 billion vaccine doses, 0.91% Case fatality rate



- *Indian Situation Update [as on 31st march 2025]*
  - 45 million cases, 0.53 million deaths, 2.21 billion vaccine doses, 1.17% Case fatality rate



COVID-19 Major Variants (As on 01 June 2023)

- VOC: Variants of Concern

WHO label	Lineage	Date of designation
Omicron	B.1.1.529	26-Nov-2021

(© Table created by Dr Vivek Jain 2023-24)

- VBM: Variants Being Monitored

WHO label	Lineage	Date of designation
Alpha	B.1.1.7	21-Sept-2021
Beta	B.1.351	21-Sept-2021
Gamma	P.1	21-Sept-2021
Delta	B.1.617.2	14-Apr-2022
Epsilon	B.1.427 B.1.429	21-Sept-2021
Eta	B.1.525	21-Sept-2021
Iota	B.1.526	21-Sept-2021
Kappa	B.1.617.1	21-Sept-2021
N/A	B.1.617.3	21-Sept-2021
Zeta	P.2	21-Sept-2021
Mu	B.1.621 B.1.621.1	21-Sept-2021

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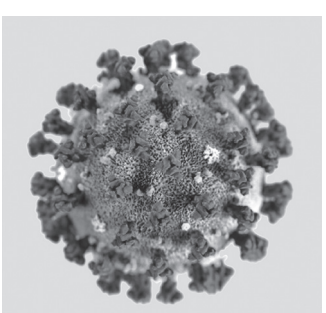
COVID-19 Epidemiology



- *Causative Agent : Coronavirus 'SARS-CoV-2'*
  - Subfamily Orthocoronavirinae, family Coronaviridae, genus Betacoronavirus, order Nidovirales, and realm Riboviria
  - Enveloped viruses with a positive-sense single-stranded RNA genome and a nucleocapsid of helical symmetry
  - Characterized by "Club-shaped spikes" projecting from their surface (Image looks like Solar corona on Electron micrographs)
  - Group of RNA viruses that cause diseases in mammals and birds
  - In humans they can result in mild illnesses (e.g., common cold) or the more lethal illnesses (e.g., SARS, MERS and COVID-19
- *COVID-19 Disease*
  - Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
  - First known case was identified in Wuhan, China, in Dec 2019
  - The disease has since spread worldwide, leading to an ongoing pandemic
- *Transmission Dynamics*
  - Incubation period: 1-14 days (median 5.1 days)
  - Route(s) of transmission:
    - Respiratory route (Aerosolised droplet transmission); virus has been shown to use the angiotensin-converting enzyme 2 (ACE2) receptor for cell entry
    - Fomite borne transmission

- Source of Infection: COVID-19 cases
- Period of Infectivity: Starts 2 days prior to onset of symptoms and declines rapidly within the first week of symptom onset

COVID-19 Case Definitions [WHO]

1. *Suspect Case*

A. A person who meets the clinical AND epidemiological criteria:

- Clinical Criteria:
  - Acute onset of fever AND cough; OR
  - Acute onset of ANY THREE OR MORE of the following signs or symptoms: Fever, cough, general weakness/fatigue, headache, myalgia, sore throat, coryza, dyspnoea, anorexia/nausea/vomiting, diarrhoea, altered mental status

  AND
- Epidemiological Criteria
  - Residing or working in an area with high risk of transmission of virus: closed residential settings, humanitarian settings such as camp and camp-like settings for displaced persons; any time within the 14 days prior to symptom onset; or
  - Residing or travel to an area with community transmission any time within the 14 days prior to symptom onset; or
  - Working in any healthcare setting, including with in health facilities or within the community; any time within the 14 days prior of symptom onset

B. A patient with severe acute respiratory illness:

- SARI: Acute respiratory infection with history of fever or measured fever of ≥38 C°; and cough; with onset within the last 10 days; and requires hospitalization

2. *Probable Case*

A. A patient who meets clinical criteria above AND is a contact of a probable or confirmed case, or linked to a COVID-19 cluster

B. A suspect case with chest imaging showing findings suggestive of COVID-19 disease

C. A person with recent onset of anosmia (loss of smell) or ageusia (loss of taste) in the absence of any other identified cause.

D. Death, not otherwise explained, in an adult with respiratory distress preceding death AND was a contact of a probable or confirmed case or linked to a COVID-19 cluster

3. *Confirmed Case*

A. A person with a positive Nucleic Acid Amplification Test (NAAT) including RT-PCR or any other similar test approved by ICMR

B. A person with a positive SARS-CoV-2 Antigen-RDT AND meeting either the probable case definition or suspect criteria OR

C. An asymptomatic person with a positive SARS-CoV-2 Antigen-RDT who is a contact of a probable or confirmed case

Clinical Features of COVID-19 Disease

- Fever, cough, general weakness/fatigue, headache, myalgia, sore throat, coryza, dyspnoea, anorexia/nausea/vomiting, diarrhoea, altered mental status
- Loss of smell (anosmia) or loss of taste (ageusia) preceding the onset of respiratory symptoms (Anosmia increase the pre-test probability of presence of SARS-COV-2)
- Older people and immune-suppressed patients in particular may present with atypical symptoms such as fatigue, reduced alertness, reduced mobility, diarrhoea, loss of appetite, delirium, and absence of fever
- Children might not have fever or cough as frequently as adults.

Risk Factors for Severe COVID-19 Disease

- Age more than 60 years
- *Underlying comorbidity:* Non-communicable diseases [Cardiovascular disease, hypertension, and CAD, DM (diabetes mellitus)] and other immunocompromised states, chronic lung/kidney/liver disease, cerebrovascular diseases and obesity.

Clinical Severity of COVID-19 Disease

Clinical severity	Clinical presentation	Clinical parameters	Management site
MILD	Uncomplicated upper respiratory tract infection, may have mild symptoms (fever, cough, sore throat, nasal congestion, malaise, headache)	Without shortness of breath or Hypoxia (normal saturation)	Covid Care Centre OR Home (as per home isolation guidelines)
MODERATE	Pneumonia with no signs of severe disease	Dyspnoea and/or hypoxia, fever, cough, including SpO_2 90 to ≤93% on room air, RR ≥24/minute	Dedicated Covid Health Centre (DCHC)
SEVERE	Severe Pneumonia	Pneumonia plus one of the following; RR >30 breaths/min, severe respiratory distress, SpO_2 <90% on room air	Dedicated Covid Hospital (DCH)
	Acute Respiratory Distress Syndrome (ARDS)	*Onset:* New or worsening respiratory symptoms within one week of known clinical insult *Chest imaging (Chest X-ray and portable bed side lung ultrasound):* Bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules. *Origin of Pulmonary Infiltrates:* Respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of infiltrates/oedema if no risk factor present. *Oxygenation impairment in adults:* MILD ARDS: 200 mm Hg <PaO_2/FiO_2 ≤ 300 mm Hg (with PEEP or CPAP ≥5 cm H_2O) *MODERATE ARDS:* 100 mm Hg <PaO_2/FiO_2 ≤200 mm Hg with PEEP ≥5 cm H_2O) *SEVERE ARDS:* PaO_2/FiO_2 ≤ 100 mm Hg with PEEP ≥5 cm H_2O)	
	Sepsis	Acute life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection (Altered mental status, difficult/fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia.	
	Septic Shock	Persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP ≥65 mm Hg and serum lactate level >2 mmol/L	

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COVID-19 Laboratory Diagnosis

- *Samples Collected [Transported at 4°C, Vaccine carrier to Lab]*
  - Nasopharyngeal and oropharyngeal swab: Dacron or polyester flocked swabs*
  - Bronchoalveolar lavage: Sterile container
  - Tracheal aspirate, nasopharyngeal aspirate or nasal wash: Sterile container
  - Sputum: Sterile container
  - Tissue from biopsy or autopsy including from lung: Sterile container
  - Serum (2 samples – acute and convalescent): Serum separator tubes

[PREFERRED SAMPLE is Throat and nasal swab in viral transport media (VTM) and transported in cold chain; ALTERNATE SAMPLE is Nasopharyngeal swab/BAL/endotracheal aspirate mixed with VTM and transported in cold chain] [Use PPE for Sample Collection]

- *Recommended Test for Diagnosis: RT-PCR*
  - Real time or Conventional RT-PCR test (or any other test approved for diagnosis of COVID-19 by ICMR) is recommended for diagnosis
  - Rapid Antigen Tests are recommended in specific situation.

COVID-19 Clinical Management Guidelines in Adults (MoHFW, GOI)

1. *Management of Mild Cases*

- Physical distancing, indoor mask use and strict hand hygiene
- Symptomatic management for fever and cough
- Fluids intake to maintain hydration
- Warm water gargles, steam inhalation multiple times a day
- Monitor temperature and oxygen saturation 2-4 times per day (SpO_2 probe to fingers)
- Seek immediate medical attention if: Difficulty in breathing or High-grade fever/severe cough, particularly if lasting for >5 days or A low threshold to be kept for those with any of the high-risk or co-morbid features
- Drug Treatment for patients with mild cases:
  - Tab Paracetamol/Tab Naproxen
  - Tab Ivermectin/Tab Hydroxychloroquine
  - Inhalational Budesonide
  - Systemic oral steroids not indicated in mild disease

2. *Management of Moderate Cases*

- Symptomatic treatment: Paracetamol for fever/pain, anti-tussives for cough
- Adequate hydration to be ensured
- Oxygen Support: Target SpO_2: 92-96% (88-92% in patients with COPD)
- Anticoagulation: Un-Fractionated Heparin or Low Molecular Weight Heparin
- Anti-inflammatory or immunomodulatory therapy
- Consider IV methylprednisolone or IV Dexamethasone
- Antibiotics should not be prescribed routinely
- Awake proning manoeuvres
- Control of co-morbid condition
- Monitoring: Clinical Monitoring, Serial CXR/HRCT chest If there is worsening, Lab monitoring (CRP, D-dimer, CBC, KFT, LFT, IL-6 levels)

3. *Management of Severe Cases*

- Early supportive therapy and monitoring
  - Symptomatic treatment with paracetamol and antitussives to continue
  - Maintain euvolemia

- Respiratory support: Supplemental oxygen therapy (Target SpO_2 ≥90% in non-pregnant adults and SpO_2 ≥92–96% in pregnant patients)
- Anti-inflammatory or immunomodulatory therapy: Inj Methylprednisolone
- Anticoagulation: Unfractionated heparin or Low Molecular Weight Heparin
- Monitoring: Serial CXR. HRCT chest to be done ONLY if there is worsening; Lab monitoring (CRP, D-dimer 24-48 hourly; CBC, KFT, LFT daily; IL-6 to be done if deteriorating)

- Management of hypoxemic respiratory failure and ARDS
  - High-Flow Nasal Cannula oxygenation (HFNO) or Non-invasive mechanical ventilation
  - Endotracheal intubation
  - Mechanical ventilation using lower tidal volumes and lower inspiratory pressures
  - Prone ventilation to be considered when there is refractory hypoxemia
  - Extracorporeal life support (ECLS) for patients with refractory hypoxemia despite lung protective ventilation
- Management of Septic shock
  - Standard care: Antimicrobial therapy and fluid loading and vasopressors for Hypotension
- Other Therapeutic Measures
  - Obstetric, neonatal, and intensive care specialist care: For pregnant patients categorized as severe
  - Psychological counselling
  - Investigational therapies: Plasma therapy, Remdesivir, Tocilizumab

COVID-19 Infection Prevention and Control Practices

1. At Triage

- Give patient a 3-layer surgical mask
- Direct patient to an earmarked separate area/isolation room
- Keep at least 6 feet distance between suspected patients and other patients.
- Instruct all patients to cover nose/mouth during coughing/sneezing with tissue/flexed elbow
- Perform hand hygiene after contact with respiratory secretion

2. Apply Standard Precautions

- Hand hygiene
- Personal protective equipment (PPE)
- Appropriate patient placement; prevention of needle-stick or sharps injury; linen management, safe BMW waste management; cleaning and disinfection of equipment; and cleaning of the environment

3. Apply Droplet and Airborne Precautions

- N-95 mask
- Eye protection (face-shield or goggles)
- PPE (with gloves, long-sleeved gowns, eye protection, particulate respirators N95)
- Negative pressure rooms (Minimum of 12 air change/hour)

4. Apply Contact Precautions

- PPE (triple layer medical mask or N95 respirator, eye protection, gloves and gown) Disposable or dedicated equipment (stethoscopes, blood pressure cuffs and thermometers)
- If shared among patients, clean and disinfect instruments between each patient use
- Refrain from touching their eyes/nose/mouth with potentially contaminated gloved/ungloved hands

- Avoid contaminating environmental surfaces
- Adequate room ventilation
- Avoid movement of patients or transport
- Perform hand hygiene

5. COVID-19 Vaccines

See Chapter 3.

COVID-19 Clinical Management Guidelines in Children (<18 Years Age)

1. Clinical Severity of COVID-19 in Children

Clinical severity	Clinical presentation	Management site
Asymptomatic	▪ Suspected contact [RAT or RTPCR negative or NA] ▪ Incidentally detected [RAT or RTPCR positive]	Home isolation (tele consultation SOS)
Mild	▪ Sore throat, rhinorrhoea ▪ Cough without breathing difficulty ▪ SpO_2 ≥94% on room air ▪ Other symptoms	Home isolation (tele consultation SOS) OR COVID Care Centre
Moderate	In addition to symptoms (Mild), Check for Pneumonia ▪ Rapid respiration (age-based): <2 months RR ≥60/min; 2–12 months, RR ≥50/min; 1–5 years, RR ≥40/min; >5 years, RR ≥30/min; AND/OR SpO_2 90–93% on room air ▪ Other symptoms	Admit in DCHC OR COVID-19 Hospital
Severe	▪ SpO_2 <90% on room air ▪ Any of the following: Signs of severe pneumonia, ARDS, Septic shock, MODS, Pneumonia with cyanosis, Grunting, Severe retraction of chest, Lethargy, Somnolence, Seizure ▪ Other symptoms	Admit in HDU/ICU of COVID-19 Hospital

(© Table created by Dr Vivek Jain 2022-23) (MODS: Multiorgan dysfunction syndrome)

2. COVID-19 Clinical Management Guidelines in Children (MoHFW, GOI)

- Management of Asymptomatic Cases
  - Infants and younger children to stay under immediate care of parents/guardians
  - No specific medication required
  - Continue medications for other conditions, if any
  - COVID appropriate behaviour (mask, strict hand hygiene, physical distancing)
  - Fluids and feeds: Maintain hydration, nutritious diet
  - Contact the doctor in case of appearance of symptoms
  - Investigations needed: NONE
- Management of Mild Cases
  - For fever, give Paracetamol
  - For cough, give throat soothing agents and warm saline gargles in older children and adolescents
  - Fluids and feeds: Maintain hydration, nutritious diet
  - No other COVID-19 specific medication needed
  - Antimicrobials are NOT indicated
  - Maintain monitoring chart (RR, chest indrawing, cold extremities, urine output, oxygen saturation, fluid intake, activity level, especially for young children)
  - COVID appropriate behaviour (mask, strict hand hygiene, physical distancing)
  - Contact the doctor in case of deterioration of symptoms
  - Investigations needed: NONE
- Management of Moderate Cases
  - Initiate oxygen if SpO_2 is <94% (Maintain 94-96%)

- Maintain fluid and electrolyte balance
- Encourage oral fluids (breast feeds in infants)
- Initiate IV fluid therapy if oral intake is poor
- Corticosteroids are NOT required
- Paracetamol
- Anti-microbials (if superadded bacterial infection)
- Supportive care for comorbid conditions, if any
- Investigations needed:
  - Baseline: CBC including ESR, Blood glucose
  - Chest X-ray

- Management of Severe Cases
  - Immediate oxygen therapy (Target SpO_2 94-96%)
  - Maintain fluid and electrolyte balance
  - Corticosteroids therapy to be initiated
  - Anticoagulants may also be indicated
  - In ARDS or shock, initiate necessary management
  - Antimicrobials to be (if superadded bacterial infection)
  - Organ support in case of organ dysfunction (e.g. renal replacement therapy)
  - Investigations needed:
    - Baseline: CBC including ESR, Blood glucose, CRP, LFT, KFT, Serum ferritin, D-Dimer
    - Chest X-ray
- Must Know
  - Steroids are not indicated and are harmful in asymptomatic and mild cases of COVID-19 (Indicated only in hospitalized severe and critically ill COVID-19 cases under strict supervision)
  - Anticoagulants are Not indicated routinely
  - Remdesivir (an emergency use authorization drug) is NOT recommended in children
  - CT chest is not indicated in diagnosis or management of COVID-19 infection in children

COVID-19 BMW Management (CPCB Guidelines)

Refer to Chapter 12

PERSONAL PROTECTIVE EQUIPMENT (PPE) MEDICAL

What is PPE?

- Personal protective equipment (PPE) - Medical is protective clothing, goggles, or other garments or equipment designed to protect the health personnel's body from injury or infection
- The hazards addressed by PPE include physical hazards, biohazards and airborne particulate matter
- PPE acts as a barrier between infectious materials such as viral and bacterial contaminants and skin/mouth/nose/or eyes (mucous membranes); and, the barrier has the potential to block transmission of contaminants from blood, body fluids, or respiratory secretions
- PPE is commonly used in health care settings such as hospitals, doctor's clinicsd and clinical laboratories
- Effective use of PPE includes properly removing and disposing of contaminated PPE to prevent exposing both the wearer and other people to infection

Components of PPE

- Gloves, gowns, shoe covers, head covers, masks (N95, Surgical mask), respirators, eye protection, face shields, hazmat suite, and goggles

Principles of PPE

Healthcare workers must follow the basic principles below to ensure that no infectious material reaches unprotected skin or mucous membranes while providing patient care

- Donning of PPE:
  - PPE must be donned correctly in proper order before entry into the patient care area
  - PPE should not be later modified while in the patient care area
- During Patient Care:
  - PPE must remain in place and be worn correctly for the duration of work in potentially contaminated areas
  - PPE should not be adjusted during patient care
  - Visibly contaminated outer gloves can be changed while in the patient room and patient care can continue
  - If during patient care any breach in PPE occurs (e.g., a tear develops in an outer glove, a needlestick occurs, a glove separates from the sleeve), the healthcare worker must move immediately to the doffing area to assess the exposure; the facility exposure management plan should be implemented
- Doffing of PPE:
  - PPE must be removed slowly and deliberately in the correct sequence to reduce the possibility of self-contamination or other exposure

PPE in Covid Pandemic (Exposure to SARS-CoV-2)

- Standard and transmission-based precautions to be followed
- PPE components:
  - Gloves (cover the wrists of the gown), goggles, gown (covering body at least from the neck to the mid-calf), a respirator with a rating of N95 or higher (or mask), and a face shield
  - Disposable N95 respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH)

COVID-19 PPE BMW Management Guidelines: 4th Revision (CPCB 2020-21)

See Chapter 12

AAROGYA SETU

- Description: Aarogya Setu is an Indian COVID–19 "contact tracing, syndromic mapping and self-assessment" digital service, primarily a mobile app, developed by the National Informatics Centre under the Ministry of Electronics and Information Technology
- Primary function: "Mobile Application" to spread awareness for COVID-19 among citizens of India
- The main functions include:
  - Self-assessment of risk (User status)
  - COVID-19 Updates (gives updates on local and national COVID-19 cases): Tells about total no. of affected people in a given area

- Covid vaccination status update for citizens
- Contact tracing
- Syndromic Mapping
- E-pass integration

- The app reached more than 100 million installs in 40 days
- This replaces the App "CORONA-KAVACH"

MUCORMYCOSIS: BLACK FUNGUS

Introduction

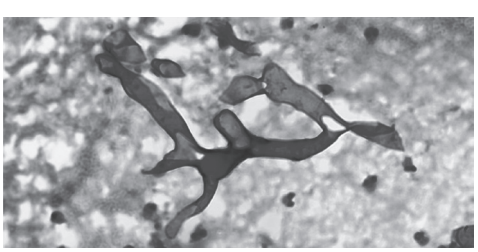
- Description: A "serious but rare" fungal infection that is frequently harmless for the immunocompetent, BUT can cause severe, frequently life-threatening infections
- Types of Mucormycosis: Rhinocerebral (sinus and brain), Pulmonary (lung), Cutaneous (skin), Gastrointestinal, Bones and Joints, Disseminated mucormycosis

Epidemiology of Mucormycosis

- Causative agent: Group of moulds - Mucormycetes
- Location: Environment, Soil
- Route of transmission: Aerosolised and dispersed by either inhalation (3-11 microns) or cutaneous/percutaneous route
- Predisposing factors of Mucormycosis in Covid Infection: Hyperglycemia in uncontrolled diabetes, Diabetic ketoacidosis, Organ/bone marrow transplantation, Neutropenia, Trauma/burns, Malignant hematologic disorders, Deferoxamine therapy (patients on hemodialysis), Rampant overuse and irrational use of steroids/broad-spectrum antibiotics, Pre-existing co-morbidities, Prolonged ICU stay, Breakthrough infections in Anti–fungal prophylaxis

Diagnosis of Mucormycosis

- Microscopic Pathologic appearance: Ribbon-like hyphae which branch at 90°, "Antlers of a moose appearance", Non-septate, Blood vessel/Angioinvasion, Haemorrhagic infarction, Coagulation necrosis, Infiltration by neutrophils, Perineural invasion



- Diagnosis:
  - Biopsy and Fungal culture (Direct detection of the fungus: Lung fluid, blood, serum, plasma, urine AND Matrix-assisted laser desorption/ionization: Identification of species)
  - Radiology: CT scan (Mucosal thickening, Bony erosions) AND MRI scan (Black turbinate sign)
  - Blood tests: CBC (Neutropenia)/Iron levels/blood glucose/bicarbonate/electrolytes
  - Endoscopic examination of nasal passages

Treatment and Prevention of Mucormycosis

- Treatment of Mucormycosis:
  - Aggressive therapy - Disfiguring surgical debridement + Adjunctive toxic antifungal therapy

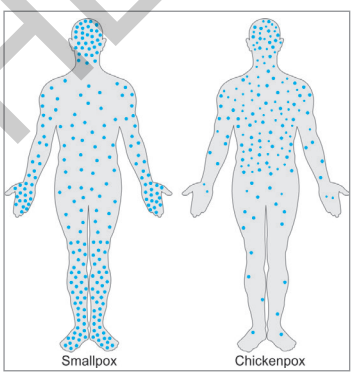
- Drugs used: Inj. Amphotericin B Deoxycholate, Liposomal Amphotericin B (DOC), Inj. Amphotericin B Lipid Complex, Posaconazole, Isavuconazole

- Prevention of Mucormycosis:
  - General measures "AVOID CONTACT WITH DECAYING ORGANIC MATTER"- Wearing a face mask in dusty areas, Washing hands,. Avoiding direct contact with water-damaged buildings, Protecting skin/feet/hands from exposure to soil or manure
  - Among COVID Positives: Prophylactic antifungals in high-risk groups, Strict Diabetes control & DKA management, Avoid unnecessary steroids/antibiotics, Early reporting of symptoms, Use clean distilled water for humidifiers during oxygen therapy.

SMALLPOX AND CHICKENPOX

Smallpox

- *Epidemiological reasons/basis for Smallpox eradication*[Q]*:*
  - No known animal reservoir
  - No long term carrier state
  - Infection provides lifelong immunity
  - Case detection simple due to characteristic rash
  - Subclinical cases did not transmit the disease
  - A highly effective vaccine was available
  - International cooperation



Small pox vs Chicken pox Rash

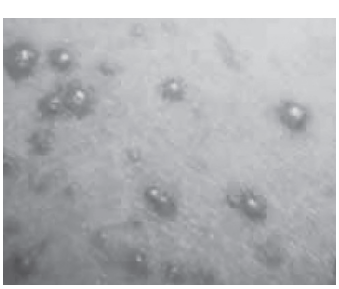
Chickenpox

- *Synonym:* 'Varicella'
- *Causative agent:* Varicella zoster virus [Human (alpha) Herpes Virus–3][Q]
- *Incubation period:* 14–16 days[Q]
- *Source of infection:* Case (person-to-person contact)
- *Mode of transmission:* Air droplets (respiratory)
- *Period of communicability:* 1-2 days before to 4-5 days after appearance of rash
- *Secondary Attack rateQ:* 90%
- *Rash:* Had to be differentiated from rash of Smallpox

KEY POINTS

Chicken pox rash
- Dew drop on rose petal appearance
- Centripetal distribution
- Pleomorphic rash

Chickenpox rash	Smallpox rash
Dew drop on rose petal appearance[Q]	—
Centripetal distribution[Q]	Centrifugal distribution
Pleomorphic rash[Q]	Non-pleomorphic
Superficial & Unilocular	Deep seated & Multilocular
Inflammation around vesicles present	No inflammation around vesicles
Affects flexor surfaces, involves axilla	Affects extensor surfaces, spares axilla
Spares palms and soles	Affects palms and soles
Rapid evolution	Slow evolution
Scabs form after 4–7 days	Scabs form after 10–14 days

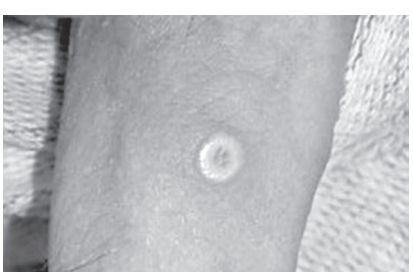

Chickenpox rash

- *MC late complication of chickenpox:* Shingles (caused by reactivation of the virus decades after the initial episode of chickenpox)
- *Most rapid and sensitive means of diagnosis*[Q]*:* Examination of vesicle fluid under electron microscope (shows round particles)
- *Congenital Varicella:* Most threatening if transmitted in Ist trimester of pregnancy

- Live attenuated Chickenpox Monovalent Vaccine:
  - Strain: OKA strain
  - Seroconversion: >90%
  - Schedule for 12 months–12 years age: 6 weeks or 3 month interval
  - Schedule for >13 years age: 4-6 weeks interval
- MMRV Combination Vaccine:
  - Age group: 9 months–12 years
  - Minimum interval between 2 doses: 4 weeks
  - Preferable schedule: 2nd dose 6 weeks-3 months later or at 4-6 years age
- *Varicella Zoster immunoglobulin (VZIG):*
  - Given within 72 hours of exposure
  - *Dose:* 1.25–5.0 mL intramuscularly
  - *Reserved for:*
    - Immunosuppressed contacts of acute cases
    - Newborn contacts

MONKEYPOX

- *Causative agent:* Monkeypox virus, a double-stranded DNA virus in the genus Orthopoxvirus (family Poxviridae)
- Incubation period: 4–21 days
- Transmission:
  - Any close physical contact with monkeypox blisters or scabs (including during sexual contact, kissing, cuddling or holding hands)
  - Touching clothing, bedding or towels used by someone with monkeypox
  - Coughs or sneezes of a person with monkeypox when they're close to you
- Clinical presentation:
  - Invasion period (0–5 days): Fever, intense headache, lymphadenopathy, back pain, myalgia and intense asthenia
  - Skin eruption usually begins within 1–3 days of appearance of fever; the rash tends to be more concentrated on the face and extremities rather than on the trunk
  - 41% of cases of monkeypox were among HIV-positive patients between May and July 2022
  - Case fatality rate (Recently): 3–6%



- Treatment:
  - First line antiviral treatment: Tecovirimat, or the smallpox treatment Brincidofovir
  - Supportive care (including antipyretic, fluid balance and oxygenation)
  - Empirical antibiotic therapy (secondary bacterial infection) or Aciclovir (Varicella zoster infection)
- Prevention: Vaccination against smallpox is assumed to protect against human monkeypox infection.

KEY POINTS

MEASLES:
- *Incubation Period:* 10-14 days
- No carriers
- *Secondary attack rate of Measles*[Q]: 80%
- Koplik spots (buccal mucosa opposite Lower 2nd molar)
- *MC complication in young children:* Otitis media

MEASLES

Measles (Rubeola)

- *Causative agent:* RNA paramyxovirus (so for only one serotype known)
- **Incubation Period: 10-14 days**[Q]
- *Source of Infection:* Cases (carriers are not known to occur[Q])

- *Mode of transmission:* Air droplets (respiratory)
- *Period of Communicability*[Q]*:* 4 days before and 5 days after the appearance of rash (*Rash:* Retro-auricular origin[Q])
  - Measles is highly infectious during pro-dromal period and during eruption
- Measles has no second attacks (life long immunity seen)
- **Secondary attack rate of Measles**[Q]**: 80%**
- *Measles shows a cyclical trend*[Q]*:* Increase every 2-3 years
- *Pathogonomic clinical feature of Measles*[Q]*:* Koplik spots (buccal mucosa opposite Lower 2nd molar)
- **MC complication of measles in young children**[Q]**: Otitis media**
  - SSPE (Subacute Sclerosing Pan Encephalitis) is a rare complication of measles[Q]: 1 per 10,000–100,000 cases (7-10 years after initial infection)
- *Measles is prevented by:*
  - *Active immunization by measles vaccine:*
  - Live, attenuated
  - *Strains:* Edmonston Zagreb (MC), Schwarez, Moraten
  - Passive immunization by measles immunoglobulin (WHO recommended dose: 0.25 mL/kg body weight[Q])
- *Treatment of Measles:*
  - No specific treatment
  - Supportive measures: Symptomatic treatment, Nutritional support, Breastfeeding (where appropriate), ORS
  - Vitamin A supplementation: All cases of severe Measles, All areas with high case fatality rates
    - To all cases: 2 doses, a dose each on Day 0 and Day 1 (50,000 IU <6 months age, 100,000 IU 6-11 months age, 200,000 IU ≥1 years age)
    - If Clinical signs of deficiency: 3rd dose 4–6 weeks later

WHO Measles Elimination Strategy[Q]: 'Catch up, Keep up, Follow up'

- *Catch up:* Nationwide, vaccination campaign targeting all children 9 months to 14 years of age, irrespective of history of Measles disease or vaccination status
- *Keep up:* Routine services aimed at vaccinating more than 95% of each successive birth cohort
- *Follow up:* Subsequent nationwide vaccination campaigns conducted every 2–4 years targeting usually all children born after the catch-up campaign.

Accelerated Measles Mortality Reduction Strategy (WHO-UNICEF)

- Two doses of Measles containing vaccine (MCV) to all children through routine and supplementary immunization activities

The Global Measles and Rubella Strategic Plan 2021-2030

- It is now a part of the Immunization Agenda 2021-2030
- A WHO-endorsed framework for eliminating measles and rubella worldwide
- The Measles & Rubella Initiative has been revitalized and is now known as the IA2030 Measles & Rubella Partnership
- Key objectives:
  - Achieve and maintain high immunity: **Provide 2 doses of the measles-rubella (MR) vaccine to at least 95% of children in every district**
  - Develop robust surveillance to monitor measles and rubella cases
  - Strengthen laboratory capacity

- Prepare for and respond to outbreaks
- Strengthen linkages and support

RUBELLA

KEY POINTS

Rubella *Incubation period:* 14–21 days

Rubella (German Measles)

- *Causative agent:* RNA virus of Togavirus family[Q]
- *Incubation period:* 14–21 days[Q] (~18 days)
- *Source of infection:* Cases or subclinical cases
  - 'No known carrier state' for postnatally acquired rubella[Q]
- *Mode of transmission:* Air droplets (respiratory)
- *Period of communicability:* One week prior to onset of symptoms to one week after rash appears
- *Immunity for Rubella:*
  - Single attack confers life long immunity (Second attacks rare)
  - 40% of reproductive age group females are susceptible in India[Q]
  - Infants protected till 4-6 m age
- *Most widely used test for diagnosis:* Heme-agglutination Inhibition test (HAI)

KEY POINTS

Rubella Vaccine
Live attenuated, 'strain RA 27/3'

Rubella Vaccine

- *Type of vaccine:* Live attenuated, 'strain RA 27/3'[Q] [Vaccine virus non-communicable]
- *Dose and route:* 0.5 ml, subcutaneous
- Rubella vaccine is contraindicated in pregnancy and not given to infants
  - *If female vaccinated for rubella:* Advice against pregnancy for next 3 months[Q]
- *Priority groups for rubella vaccination in India:*
  - *1st PRIORITY:* **15–49 years reproductive age group females[Q]**
  - *2nd priority:* All children 1–14 years age
  - *3rd priority:* Routine universal immunization of all children aged 1

Congenital Rubella Syndrome (CRS)

- *CRS is said to have occurred if*[Q]*:*
  - Infant has IgM rubella antibodies shortly after birth, or
  - IgG antibodies persist for more than 6 months
- Major determinant of extent of fetal infection in CRS: Gestational age at which fetal transmission occurs
- *Infection in I trimester:* MOST DISASTROUS TIME[Q]
  - Abortions
  - Still births
  - *Skin lesions:* blueberry muffin lesions[Q]
  - 'Triad of Congenital Rubella Syndrome' [*Congenital heart defects (MC is PDA*[Q]) + Cataracts + Sensorineural deafness]
- *Infection in early part of II Trimester:* Deafness (only)
- *Infection after 16 weeks POG:* No major abnormalities
- *Risk of fetal damage in CRS:*

KEY POINTS

Rubella
Infection in I trimester: MOST DISASTROUS TIME

Stage of gestation	% fetuses infected	% fetuses damaged among infected	Overall risk of damage
<11 weeks	90	100	90
11–16 weeks	55	37	20
17–26 weeks	33	0	0
27–36 weeks	53	0	0

MUMPS

- **Causative agent:** Myxovirus parotiditis (RNA paramyxovirus)
- *Incubation Period:* 14-21 days[Q]
- *Source of Infection:* Clinical & subclinical cases
- *Mode of transmission:* Air droplets (respiratory)
- *Period of Communicability:* 4-6 days before to 7 days after onset of symptoms
- Mumps show life long immunity
- *Secondary attack rate of Mumps*[Q]*:* 86%
- *Clinical features:*
  - Salivary (esp. Parotid) glands involvement[Q]
  - *MC complication*[Q]*:* Aseptic meningitis
  - *MC complication in adolescents*[Q]*:* Orchitis, Oopheritis
- *Mumps is prevented by:* Active immunization by Mumps vaccine:
  - *Type:* Live attenuated vaccine[Q]
  - *Strain:* Jeryll Lynn strain[Q]

KEY POINTS

MUMPS
MC complication[Q]*:* Aseptic meningitis

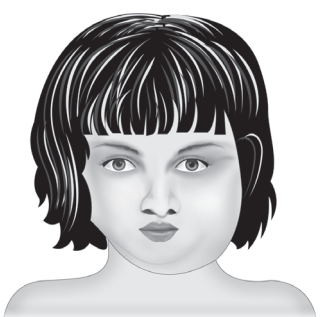
INFLUENZA

Influenza

- *Causative agent:* Orthomyxovirus, 3 types: A, B, C
  - *Type A:* MC cause of outbreaks/epidemics[Q]; Only cause of pandemics[Q]
  - Type B
  - *Type C:* Not circulating currently
- *Currently circulating influenza viruses in world:*
  - **H_1N_1 (Type A)–Cause of Swine flu**[Q]
  - H_2N_2 (Type A)
  - **H_5N_1 (Type A)–Cause of Avian influenza (Bird flu)**[Q]
  - H_3N_2
  - H_7N_9
  - H_5N_6
  - Type B
- *Cyclical trends in Influenza*[Q]*:*
  - Type A epidemics every 2–3 years
  - Type B epidemics every 4–7 years
  - Type A pandemics every 10–15 years
- *Antigenic variations in Influenza:* (MC in Type A[Q])

	Antigenic shift[Q]	Antigenic drift[Q]
Occurs due to	Genetic recombination/reassortment/rearrangement	Point mutation[Q]
Nature	Sudden	Gradual/insidious
May lead to	Pandemics[Q]	Epidemics

- *Incubation period:* 18–72 hours[Q]
- *Period of infectivity:* 1–2 days before to 1–2 days after onset of symptoms[Q]



Mumps

KEY POINTS

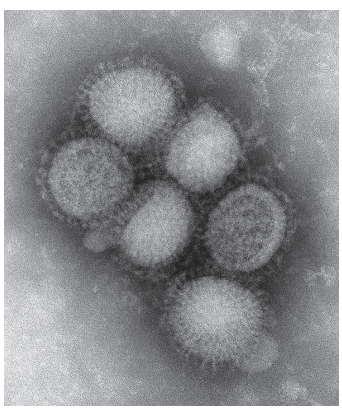
H_1N_1 (Type A)–Cause of Swineflu

Avian Influenza

- Also known as 'Bird flu' or 'Highly pathogenic avian influenza'
- *Causative agent*[Q]*:* H5N1 (Type A Influenza virus)
- *Avian Influenza is a Pandemic:* Origin from Hong Kong (1997)
- *Drug of choice*[Q]*:* Oseltamivir (Tamiflu) 75 mg BD × 5 days (contraindicated in infants)

Influenza: Pandemic (H_1N_1) Influenza 2009 [NEW NOMENCLATURE: Influenza A (H_1N_1) pdm 09]

- *WHO declaration of Influenza pandemic:* 11 June 2009
  - *World is now post-pandemic EXCEPT:* INDIA and NEW ZEALAND (locally intense transmission)
  - *Problem statement India:* 37000 cases, 1833 deaths [May 2009–August 2010]
- *Incubation period:* 1–4 days
- *Clinical features:*
  - *Uncomplicated influenza:* Influenza like illness (Fever, cough, sorethroat, rhinorrhoea, headache, muscle pain), GIT illness (diarrhoea WITHOUT dehydration)
  - *Complicated/severe influenza:* Pneumonia, CNS involvement, Severe diarrhoea, Secondary complications,
  - Exacerbation of chronic diseases
  - *Progressive disease:* Oxygen impairment/cardiopulmonary insufficiency, CNS complications, Invasive secondary bacterial infection, Severe dehydration
- *Risk factors of severe disease*[Q]*:*
  - Infants and children <2 years
  - Pregnant females
  - COPD
  - Chronic cardiac disease
  - Metabolic disorders
  - Chronic renal/hepatic/neurological/hemoglobinopathies/immunosuppression (INCLUDING HIV) disorders
  - Children on aspirin therapy
  - Persons aged >65 years
  - Morbid obesity
- *Laboratory diagnosis:*
  - *Most timely and sensitive detection:* RT-PCR test[Q]
  - *Samples:* **Nasopharyngeal + throat swabs** [Tracheal/bronchial aspirates in lower respiratory tract infection cases][Q]
  - *Point-of-care/Rapid diagnostic tests:* Not recommended
- *Duration of isolation:* for 7 days after onset of illness OR 24 hours after resolution of fever/respiratory symptoms whichever is longer
- *Antiviral therapy:*
  - *Severe/progressive clinical illness:* Oseltamivir[Q] (if not available or resistance, use Zanamivir)
  - *High risk of severe/complicated illness:* Oseltamivir OR Zanamivir
  - *Not high risk OR Uncomplicated confirmed/suspected illness:* No need of treatment
  - *Dosage:*
    - Oseltamivir 75 mg BD × 5 days
    - Zanamivir 2 inhalations (2 × 5 mg) BD × 5 days



H_1N_1 virus

KEY POINTS

DOC for H_1N_1
- Oseltamivir 75 mg BD × 5d

Oseltamivir Dosages[Q]

Treatment	Prophylaxis
By weight <15 kg: 30 mg BD × 5 days 15–23 kg: 45 mg BD × 5 days 24–39 kg: 60 mg BD × 5 days ≥40 kg: 75 mg BD × 5 days	By weight <15 kg: 30 mg OD × 10 days 15–23 kg: 45 mg OD × 10 days 24–39 kg: 60 mg OD × 10 days ≥40 kg: 75 mg OD × 10 days

Contd...

REVIEW OF
PREVENTIVE AND SOCIAL MEDICINE
(INCLUDING BIOSTATISTICS)

Salient Features

- NEW Chapter-wise Image Based MCQs with Explanatory Answers
- NEWLY Added 100+ Images, Flowcharts & Diagrams
- Recent most solved MCQ papers (2012–2025)
- Recent/ New topics and Changing concepts in PSM
  - **NEW Initiatives (Indian):** National Strategic Plan – Malaria Elimination 2023–27, Sapna – Mascot of NLEP, National Strategic Plan and Roadmap for Leprosy 2023–27, Ayushman Aarogya Mandir, Tele MANAS (Tele Mental Health Assistance and Networking Across States), The National Strategic Plan for HIV/AIDS and STI 2021–2026
  - **NEW Initiatives (Global):** Global Action Plan for Prevention and Control of NCDs 2013–20, 2020–30 (WHO), Immunization Agenda 2030, The Global Measles and Rubella Strategic Plan 2021–2030, Global Health Sector Strategy on Viral Hepatitis, WHO (2022–2030), Mental Health Gap Action Program (mhGAP) WHO
  - **NEW Topics in Public Health:** Changes in disease pattern (top causes), Pneumonia treatment in young children, Tomato Flu, Covid Vaccines, The World Medical Association's (WMA) Declaration of Oslo, Monkeypox, Coronavirus & COVID-19 disease, Mucormycosis, Emerging & Re-emerging pathogens, Air Quality Index (AQI), Global Hunger Index (GHI), Tribal health in India, Health Index of India
  - **NEW Topics in Disease Control:** Hand-washing (WHO), New Anti-TB drugs and regimens under NTEP, Cholera vaccines, Longer regimens for MDR TB, TB Preventive therapy, Trachoma Elimination, Infant and Young Child Feeding (IYCF) Guidelines, New Anti-Cervical Cancer Vaccines, New Anti-Rabies Vaccines, COVID-19 Vaccines
  - **NEW Updated Guidelines:** NACP Phase V 2021–26, Intensified Mission Indradhanush 5.0 (IMI 5.0), Leprosy Management Guidelines under NLEP 2025, Mission Shakti 2021–26, Pradhan Mantri Matru Vandana Yojana (PMMVY) 2.0, Protection of Children from Sexual Offences Act 2012, The Digital Personal Data Protection (DPDP) Act, 2023, MTP Act Guidelines 2021–22, NTEP Guidelines 2020–21, National Immunization Schedule (NIS) 2026–27, New Vaccines (Dengue, Leprosy, Malaria, Rabies, MR, COVID-19)
  - **New Inclusions and Updated Topics in Public Health:** Cohen's Kappa, LJ medium, De-facto Census, Behaviour Change Model (Transtheoretical Model), Incremental Cost-Effectiveness Ratio (ICER), New Sterilization Guidelines, New Semen analysis (WHO) guidelines, Newer Visual Impairment guidelines, Haddon matrix, New Establishments (NITI Aayog, NIRT, NIE, NIDM, NDRF), New/Emerging Diseases (H^5N^6, H^7N^9, Ebola, MERS-CoV), Recent Schemes (NIKSHAY, Swajaldhara, Link worker, Ujjwala, ICPS, PMMVY), M-Diabetes, DOTS-99, AMRIT, LaQshya
- Covid Situation Update, Newer Covid Vaccines Updates 2026–27
- Updated compilation of Public Health Statistics of India 2026–27

Author E-support get regular updates on PSM and information for live lectures by Dr Vivek Jain

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Vivek Jain is MBBS graduate from Maulana Azad Medical College, New Delhi, India and has done MD (Community Medicine – PSM) from Lady Hardinge Medical College, New Delhi, India. He had been a consultant with the 'UN Office on Drugs and Crime–South Asia' for SAARC region and has travelled extensively across the globe. He has authored several best-seller books for both Indian and Foreign Medical Graduates. He has also authored several research/review articles for indexed journals of repute. He has been actively involved in teaching medical students across multiple countries for the last 17 years. He has also developed a PSM VideoLecture Mobile App for Medical students in India and abroad. He is a Co-founder of Cerebellum Academy, an EdTech based platform. He is currently working on key EdTech projects for teaching and training of medical, nursing and allied health sciences' students and professionals. Having worked with Medical Colleges, Government of India and WHO/United Nations in different capacities, he feels there is a lot of scope for improvement in teaching medicine in the country.

Shelving Recommendations
PREVENTIVE AND SOCIAL MEDICINE

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