

Measles Virus

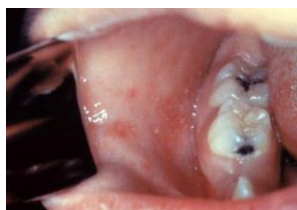
The measles virus (RNA Virus) is a paramyxovirus, genus Morbillivirus. The World Health Organization estimates there were 145,700 deaths globally from measles in 2013.

Incubation period: Average 14 days (range 7–21 days).

Measles transmission is primarily person to person via respiratory droplets.

Measles is characterized by a prodromal stage (2–4 days) of fever and malaise, cough, and conjunctivitis, followed by an erythematous maculopapular rash. Koplik's spots, occurs 1–2 days before the rash to 1–2 days after the rash, Koplik's spots are small, red, irregularly-shaped spots with blue-white centers found on the mucosal surface of the oral cavity.

Common complications include diarrhea (8%), middle ear infection (7%–9%), and pneumonia (1%–6%). **Encephalitis**, which can result



in permanent brain damage, occurs in approximately 1 per 1,000–2,000 cases of measles.

Subacute sclerosing panencephalitis (SSPE), a rare but serious degenerative central nervous system disease caused by a persistent infection with a defective measles virus, is estimated to occur in 4–11 per 100,000 cases.



Skin of a patient after 3 days of measles infection.

Infection may occur among College students, Persons working in medical facilities, and International travelers are at risk of having measles. In temperate areas, measles disease occurs primarily in late winter and spring.

MMR Vaccine

- First dose of MMR at 12-15 months
- Second dose of MMR at 4-6 years
- Second dose may be given any time at least 4 weeks after the first dose
- For the first dose of measles, mumps, rubella, and varicella vaccines either MMR and varicella vaccines or MMRV vaccine can be used
- For the second dose at any age, use of MMRV vaccine generally is preferred.
- Fever 5-15%
- Rash 5%
- Thrombocytopenia, Lymphadenopathy, and allergic are rare.

Host factors:

- Nutrition: measles tend to be severe in malnourished children.

- Infant: are usually immune during the first few months of life through the transplacental transmission of passive immunity from the mothers.
- Large epidemic waves occur on alternative years in densely populated urban areas, but at longer interval in rural areas.
- The explosive outbreak seems to occur only when there has been a sufficient accumulation of susceptible children.

Lab. Diagnosis:

- Increase **antibodies titres of haemagglutination-inhibiting (HI)**, and neutralizing (N) antibodies.
- Capture antibodies for measles **IgM** antibodies.
- **Urine** specimen to detect the virus through polymerase chain reaction (PCR).

Control:

- 1- Isolation of children **for 4 weeks** who have measles is of limited value in the control of infection because it's highly infectious in the prodromal phase before the characteristic rash appears.
- 2- Quarantine to contacts for 15 days.
- 3- Active immunization: the best means of reducing the incidence of measles is by having an immune population, children should be vaccinated at 12 months, with one dose of live attenuated measles virus vaccine, gives about 12 years protection. vaccine must be kept in a temperature between 2 and 8 C, and protected from light.

4- Passive immunization: artificial passive immunization using immune gamma globulin (0.25 ml/ kg) is given early within 3 days of exposure, the infection will be prevented.

Supportive treatment: (to prevent complication)

Vitamin A is administered once a day for 2 days at the following doses:

50,000 IU for infants aged <6 months

100,000 IU for infants aged 6–11 months

200,000 IU for children aged ≥ 12 months

German Measles

This disease is often mild of low grade fever and sore throat. The disease can last one to five days. Children recover more quickly than adults. Rash may start 2 weeks after exposure and lasts for 3 days (itchy and less bright than measles).

Is an acute viral infection (Rubella Virus) which presents with fever, mild upper respiratory symptoms, lymphadenopathy affecting post-cervical and sub-occipital. During the first trimester of pregnancy is associated with abortion and high risk (up to 20%) of congenital abnormalities in the fetus. the child may be born with congenital rubella syndrome (CRS). Deafness, congenital heart abnormality, cataract.

I.P: 2-3 weeks

Aetiological agent is the rubella virus.

Epidemiology: world wide, humans are the reservoir of infection, transmission by droplets or by direct or indirect contact.

Lab. Diagnosis:

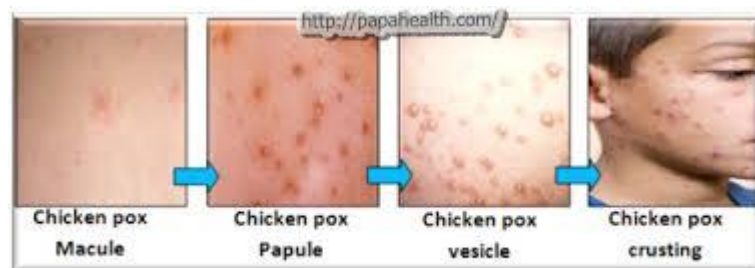
Specific IgM antibodies and M-antibodies.

Clinical differentiation from other mild infection difficult.

Control:

- Vaccination of prepubertal girls with a single dose.
- Any pregnant women who has in contact with the disease should be protected with human immunoglobulin.

Chicken pox (Varicella) (varicella-zoster virus).



Acute febrile illness with characteristic skin rash appears first in

abdomen, back, face and then spread all over the body. incubation period usually from 10 -21 days.

Common infection all over the world.

Mode of transmission is directly through droplet infection from respiratory tract. Or indirectly from soiled articles.

Infectious remains from 1-2 days before the rash appears and until the blisters (itchy) have formed scabs.

In most cases its mild, self-limiting disease. More sever in adults.

One attack usually gives lifelong immunity.

Lab. Dx: virus cultured or identified immunologically from the early skin lesions or from throat.

Control: first exclude small pox. Patient are isolated from susceptible persons.



Antiviral drug such as acyclovir.

Immunization: in some developed countries a live attenuated virus (Oka strain) vaccine. Given to non-immune child 12 months to 12 years

Small pox (Variola virus)

Eradication?? 1979

Biological weapon??

Epidemiological Surveillance powerful measure through systemic tracing of foci of infection. + vaccine improvement.