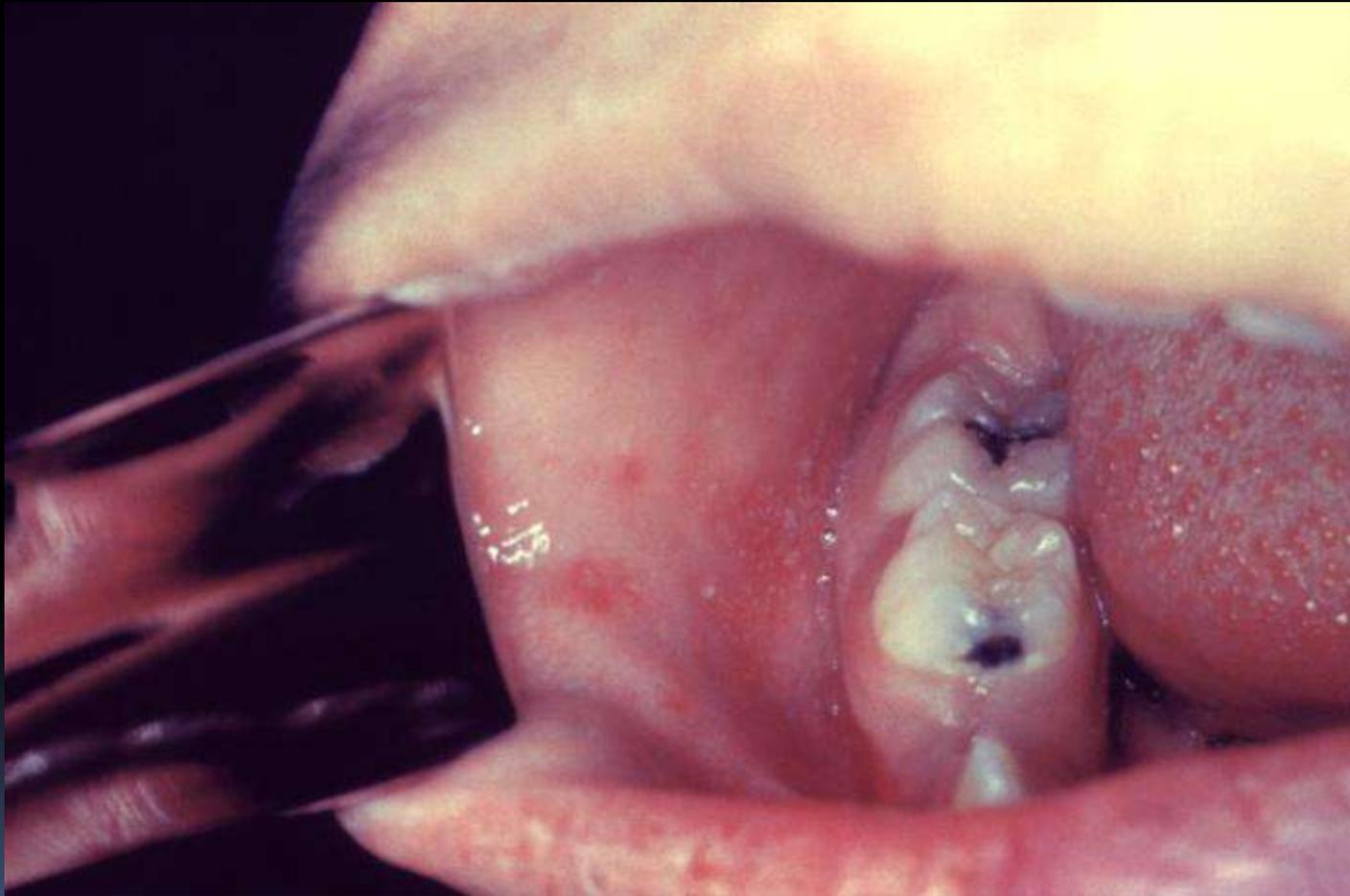




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MEASLES AND RUBELLA

MEASLES.....



In 1998 it is estimated that there were approximately one million deaths from measles

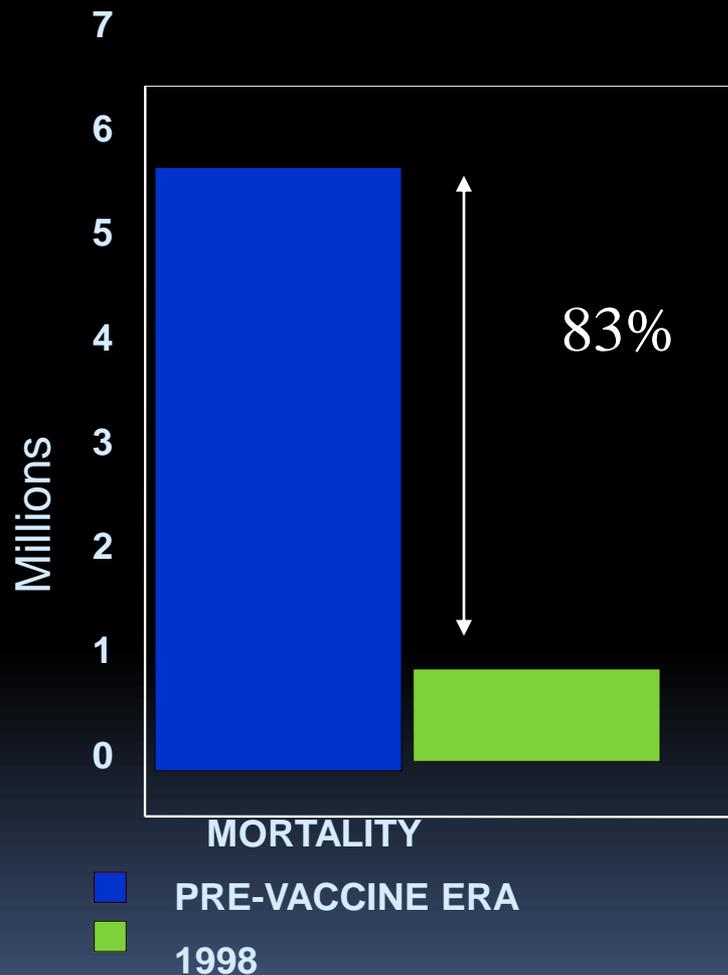
In other words,

the measles virus killed

2,410 children each day

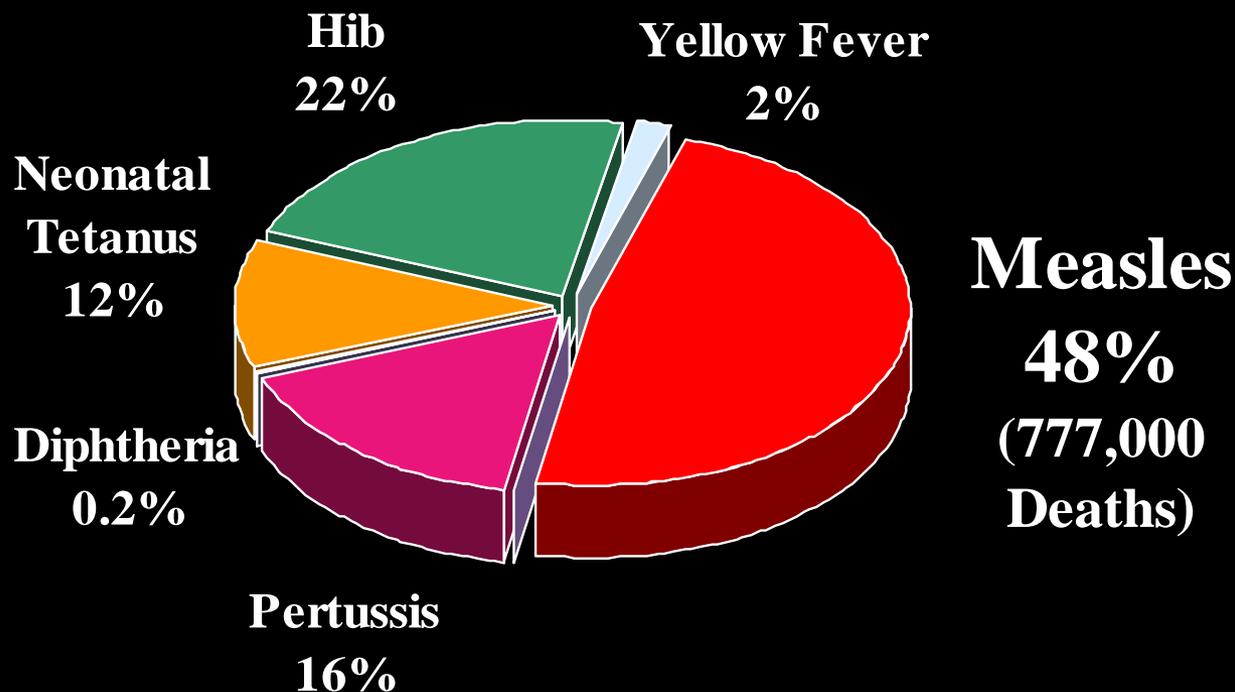
100 children each hour

.... 150 children died during the time elapsed by the end of this presentation



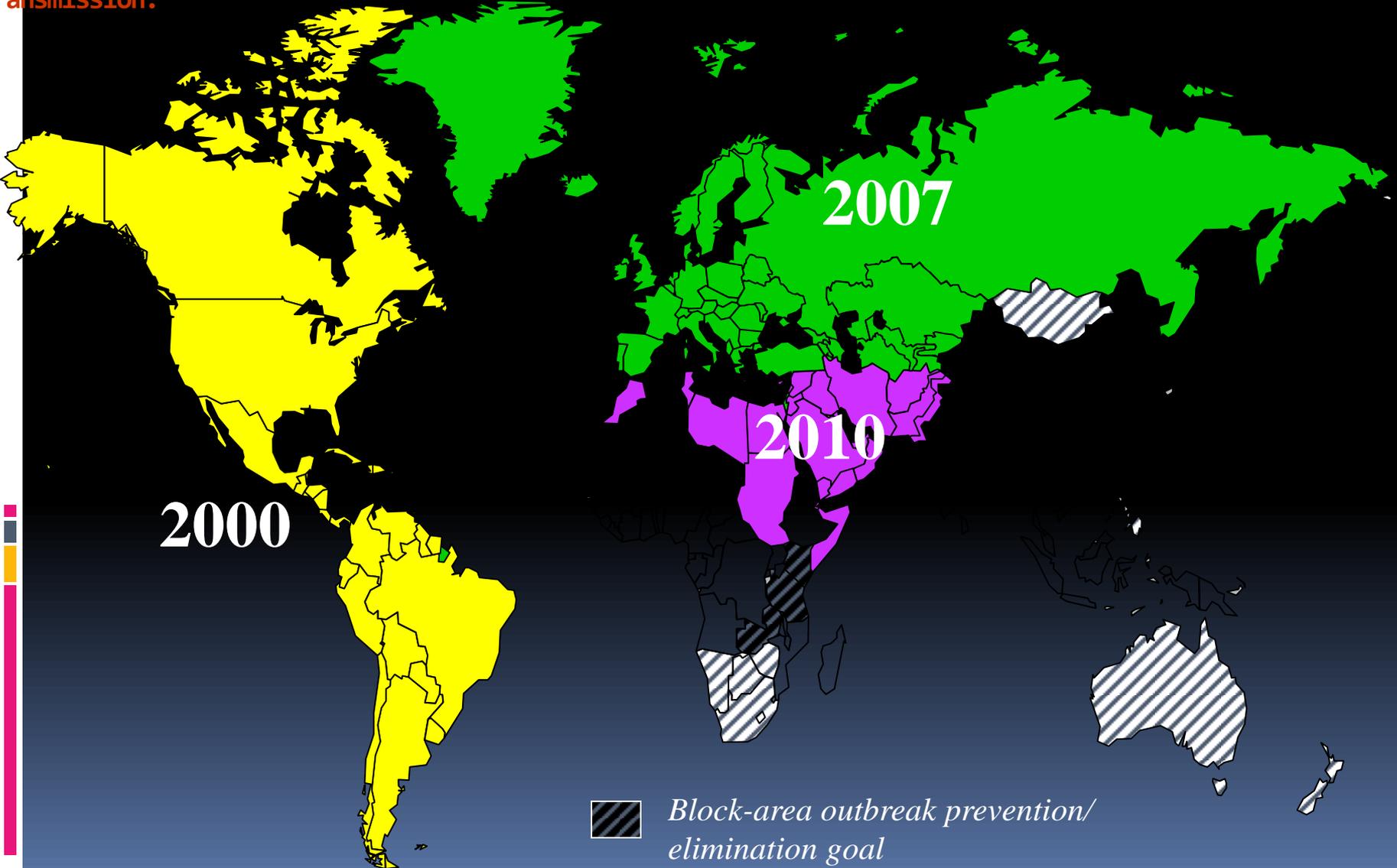
MEASLES: A leading cause of childhood deaths

Causes of 1.6 million vaccine-preventable deaths among children, 2000



There are three WHO Regions with established measles elimination goals: the Pan American region, 2000, the European region, 2007 and the Eastern Mediterranean region 2010.

The other regions: Africa, South East Asia and the Western Pacific have goals to control measles transmission.





Aetiology.

- Measles is caused by the measles virus.
- Measles virus is spread in droplets from the nose and throat of people with measles.
- Measles is highly contagious and almost everyone coming into contact with an infectious person will contract the disease, unless they have had measles before or have been vaccinated.

case definition..

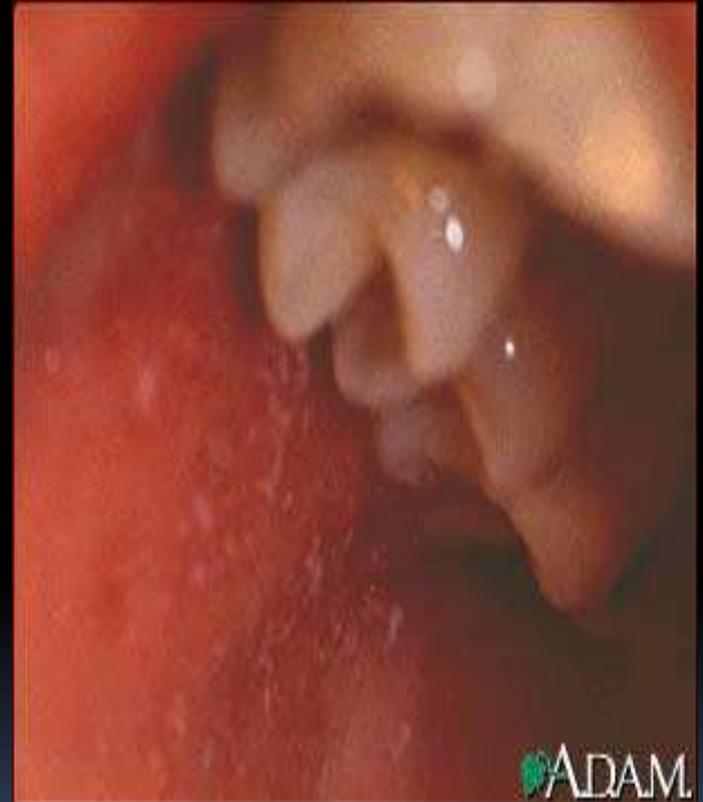
- Fever
- AND
- generalized maculopapular rash
- AND
- Cough, coryza or conjunctivitis

Clinical features...

- The incubation period ranges from 7 to 14 days (average, 10-12 days).
- Patients are contagious from 1-2 days before the onset of symptoms.
- Healthy children are also contagious during the period from 3-5 days before the appearance of the rash to 4 days after the onset of rash. ,
- immunocompromised individuals can be contagious during the duration of the illness.
- The first sign usually a high fever that typically lasts 4-7 days.
- This prodromal phase is marked by malaise, fever, anorexia, and the classic triad of conjunctivitis , cough, and coryza.
- Other possible symptoms - photophobia, periorbital edema, and myalgias.



- The characteristic enanthem generally appears 2-4 days after the onset of the prodrome and lasts 3-5 days.
- Small spots (Koplik spots) can be seen inside the cheeks during this early stage .



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- The exanthem(maculopapular) usually appears 1-2 days after the appearance of Koplik spots; mild pruritus may be associated.
 - On average, the rash develops about 14 days after exposure, starting on the face and upper neck and spreading to the extremities.
 - Immunocompromised patients may not develop a rash.
 - The entire course of uncomplicated measles, from late prodrome to resolution of fever and rash, is 7-10 days.
 - Once the rash reaches the feet, there is usually a sudden improvement, including a drop in temperature. (If the temperature does not drop at this point, a complication should be suspected.) The rash will start to fade and turn brownish, and some peeling occurs.
 - Cough may be the final symptom to appear.

Investigations.

TEMPOH ONSET RUAM	SPESIMEN	JENIS UJIAN	
		Isolasi virus	serology
1-5 hari	Darah		√
	Urine/ swab tekak/ Nasopharyngeal	√	
6- 28 hari	Darah		√

- 
- 
- Repeat serology at 10-20 day :
 - i. Equivocal measles/rubella IgM.
 - ii. Negative measles/rubella IgM if taken less than 5 days of rash onset.

Complications.

- Complications are more likely in malnourished children, and vitamin A deficiency.
- Measles also tends to be more severe in infants younger than one year and in any person who is immunosuppressed.
- Croup.
- Pneumonia
- Middle ear infection.
- Diarrhoea is usually mild, but in malnourished children it can be severe and prolonged.
- Bacterial infection, causing quite severe eye inflammation and possibly leading to scarring of the cornea with partial blindness is another risk for malnourished children. This happens especially if the eyes are not attended to early enough.
- Measles is such a serious infection and leaves the individual's immune system suppressed for some weeks to months afterward.

- 
- ❑ Encephalitis occurs in about 1/1 000 cases of measles. At least 10 percent of children with measles encephalitis die and some are left with mental retardation, deafness, paralysis or epilepsy.
 - ❑ A delayed, fatal form of encephalitis, appearing weeks to months after measles can occur in immunocompromised persons.
 - ❑ Subacute sclerosing pan-encephalitis (SSPE) is an extremely rare but dreaded condition, usually occurring many years after measles.
- 



Managements .

- Notify: all suspected cases within 24H.
 - Supportive treatment.
 - Airborne precautions : 3-5 day before the appearance of a rash to 4 days after the rash develops in healthy children and for the duration of illness in patients who are immunocompromised).
 - Susceptible health care workers should be excused from work from the fifth to the 21st day after exposure .
- 

■ **Vitamin A Supplementation**

- Vitamin A supplements : reduce 50% in morbidity and mortality and appear to help prevent eye damage and blindness.
- Infants younger than 6 months – 50,000 IU/day PO for 2 doses
- Age 6-11 months - 100,000 IU/day PO for 2 doses
- Older than 1 year - 200,000 IU/day PO for 2 doses
- Children with clinical signs of vitamin A deficiency – The first 2 doses as appropriate for age, then a third age-specific dose given 2-4 weeks later

- 
- **Postexposure Prophylaxis**
 - Postexposure prophylaxis should be considered in unvaccinated contacts. Prevention or modification of measles in exposed susceptible individuals involves the administration of measles virus vaccine or human immunoglobulin (Ig).

- Human Ig : administered within 6 days of exposure.
- Human Ig is given to the following individuals:
 - i. Those who are immunocompromised
 - ii. Infants aged 6 months to 1 year (morbidity is high in children younger than 1 year)
 - iii. Infants younger than 6 months who are born to mothers without measles immunity
 - iv. Pregnant women
- In contacts for whom the vaccine should be deferred (eg, pregnant patients), human Ig 0.25 mL/kg (not to exceed 15 mL) should be administered intramuscularly (IM) immediately after exposure, and the measles vaccine should be given 6 months later. Exposed immunocompromised patients with a contraindication to vaccination should receive human Ig 0.5 mL/kg (not to exceed 15 mL) IM.

Measles vaksin.....

- Live attenuated.
- Keberkesanan > 95%.
- Immuniti- life long.
- Vaksin sensitif kpd cahaya.
- Unstable after reconstituted.
- At 22-25C – 50)% loss potency in 1H
- Peti sejuk- mesti digunakan dlm 8 jam.
- S/E: fever (7-12/7), transient rash, thrombocytopenia, encephalitis (1:3 juta dose)

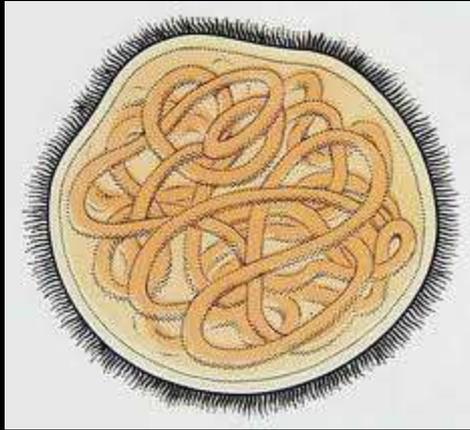
RUBELLA...



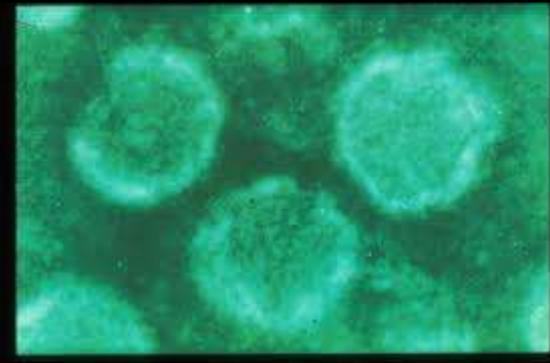


Case definitions..

- Acute generalized maculopapular rash.
 - $T > 37.2$, if measured.
 - Arthargia/arthrititis, lymphadenopathy or conjunctivitis.
 - All above.
- 



- Rubella is an RNA virus classified as a Rubivirus in the Togaviridae family.



Clinical features....

- ❖ Spread by nasal droplet infection
- ❖ Incubation period of 14-19 days,.
- ❖ Onset of a rash usually on the 15th day.
- ❖ Spread from a few days before to 5-7 days after the appearance of the exanthem.
- ❖ The virus can be detected in the pharynx from 7 days before until 7 days after the rash.
- ❖ Patients are most contagious when the rash is erupting. Patients are not considered clinically contagious after 7 days.
- ❖ Infection usually confers lifelong immunity, but reinfection is occasionally detected serologically after the natural disease or a vaccination upon reexposure to the virus and rarely results in clinical disease.

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- ❖ In children, a prodrome may not be present.
 - ❖ In adults, fever, sore throat, and rhinitis may be present.
 - ❖ The exanthem begins as discrete macules on the face that spread to the neck, the trunk, and the extremities.
 - ❖ Appearance of the rash corresponds with the appearance of the rubella-specific antibody.
 - ❖ The exanthem lasts 1-3 days, first leaving the face, and may be followed by desquamation.

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- ❖ The hallmark : generalized, tender lymphadenopathy - most striking in the suboccipital, postauricular, and anterior and posterior cervical nodes.
 - ❖ Polyarthralgia and even polyarthritis may occur and rarely may persist longer than 2 weeks.
 - ❖ Fifty percent of women may have arthralgias, and 10% have arthritis, 3 days post rash with the natural infection or within 2-6 weeks after a vaccination.
 - ❖ Rarely, recurrent episodes of inflammation of the fingers, the wrists, and the knees can continue for more than a year.
 - ❖ Very rarely, a syndrome of low-grade fever, chronic fatigue, and myalgias can persist for months or years.

Complications..

Complications are rare.

- ❖ Rarely, encephalitis or peripheral neuritis may occur.
- ❖ Thrombocytopenia usually resolves within a month.
- ❖ Congenital rubella syndrome.

Congenital rubella syndrome

- ❖ Of infants infected in the first trimester, 50% are affected.
- ❖ The most common abnormalities are ophthalmologic in nature (eg, cataracts, retinopathy).
- ❖ Cardiac abnormalities (eg, patent ductus arteriosus, pulmonary stenosis) may be seen.
- ❖ Auditory involvement may be present as sensorineural deafness.
- ❖ Neurologic disorders (eg, meningoencephalitis, mental retardation with behavioral disorders).

hepatitis, splenomegaly, pneumonitis, myocarditis, and/or osteomyelitis.

- ❖ If the bone marrow is affected, thrombocytopenia with purpura and petechiae occur. Bizarre purple macules and papules, which represent persistent dermal (extramedullary) hematopoiesis, are seen in the skin. This appearance is known as blueberry muffin baby. Note the image below. Blueberry muffin newborn with lesions on the forehead.
- ❖ An infant may continue to shed the virus for up to 1 year.



Investigations.

- ❖ Rubella virus can be cultured from the nasopharynx, blood, urine, and CSF.[‡]
- ❖ A rising titer of immunoglobulin M (IgM) antibody over a 2-week period indicates a recent infection.
- ❖ An infant with congenital rubella syndrome shows the IgG antibody from the mother, which disappears in a few months, and an elevated IgM antibody level because of antibody production by the infant.
- ❖ After 1 year, confirming the diagnosis of congenital rubella syndrome in an infant with serology alone is very difficult.

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- No specific treatment is available for rubella.
 - Isolated from work, school, or other public settings.
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Rubella...

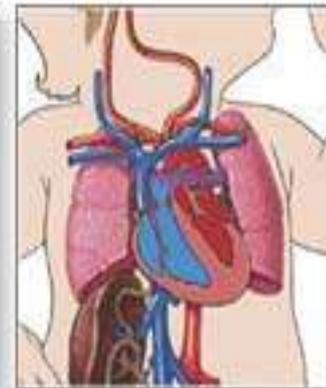


- Komplikasi:
- Abortion.
- Congenital malformation.
- Meningitis.
- Neurological deficit.

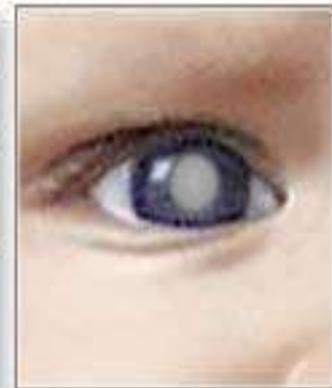
Rubella syndrome



Microcephaly



PDA



Cataracts

Rubella vaksin...

- Live attenuated .
- Seroconversion: >95%.
- Immuniti: 10-18 thn.
- Kestabilan: sama spt measles vaksin.
- s/e = measles.