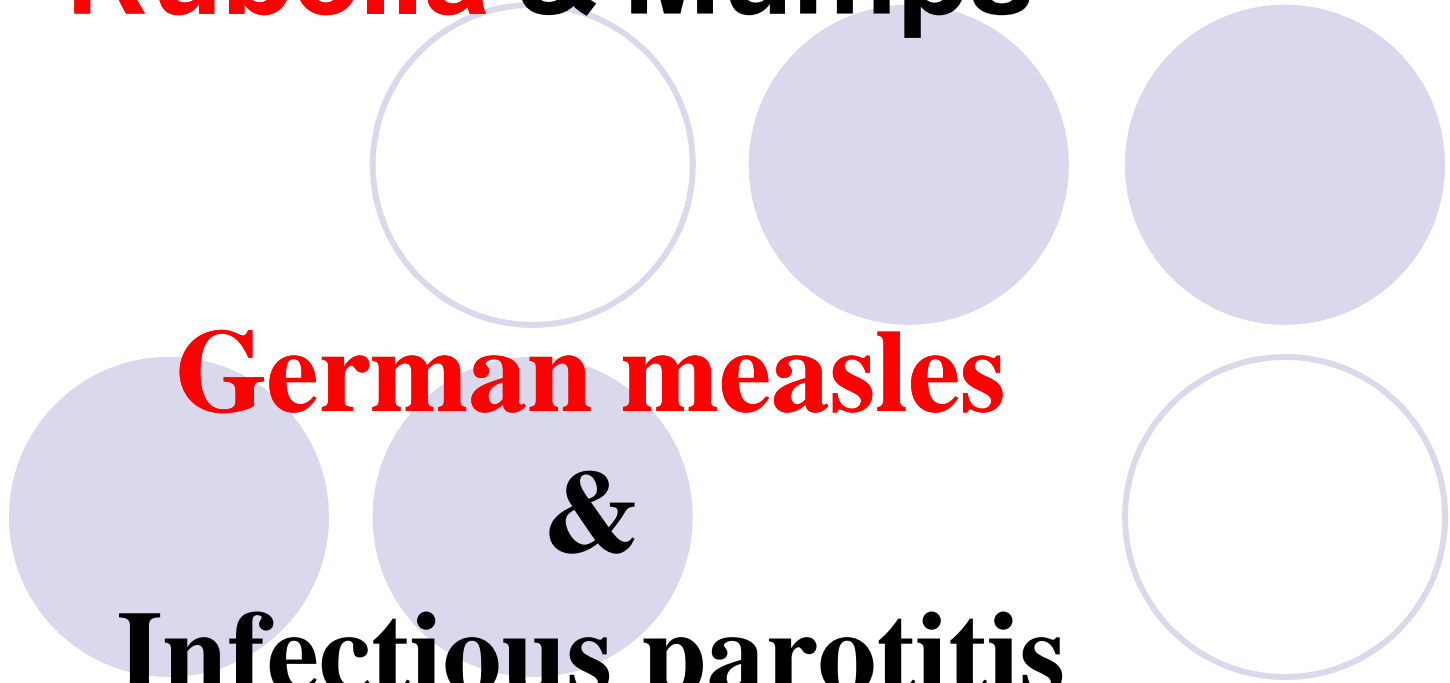


**Rubella & Mumps**

**German measles**

**&**

**Infectious parotitis**



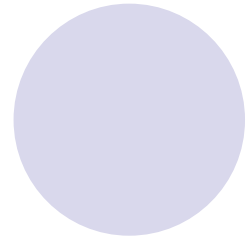
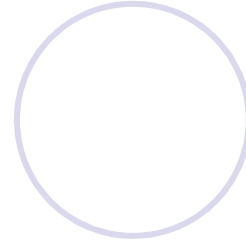
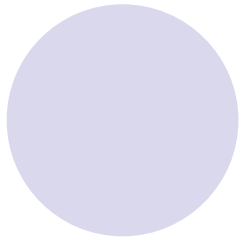


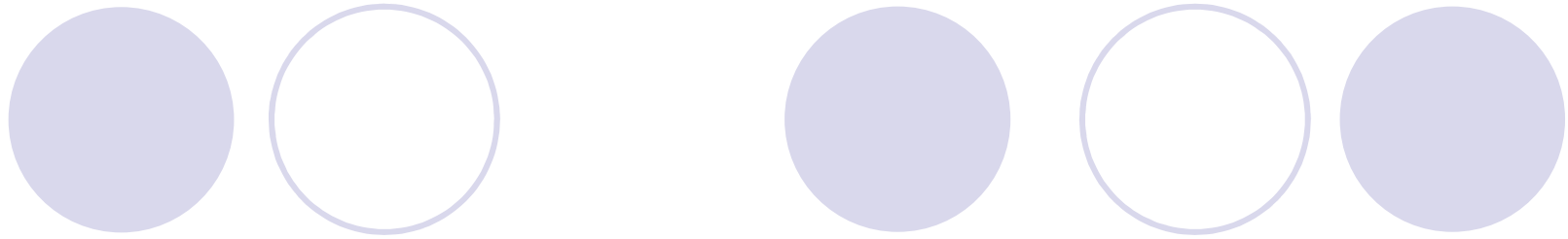
## Session objectives

1. Signs and symptoms & complications
2. Diagnosis
3. Complications
4. Epidemiology(Infectious agent, Occurrence, Reservoir, Mode of transmission, Incubation period, Susceptibility & resistance)
3. Prevention & Control
4. Treatment

**Rubella** is a mild febrile disease with diffuse punctate and maculopapular rash, post auricular, occipital & posterior cervical lymphadenopathy.

It's a generally mild disease in children; the primary medical danger of rubella is the infection of pregnant women because it can cause **congenital rubella syndrome** in developing babies.



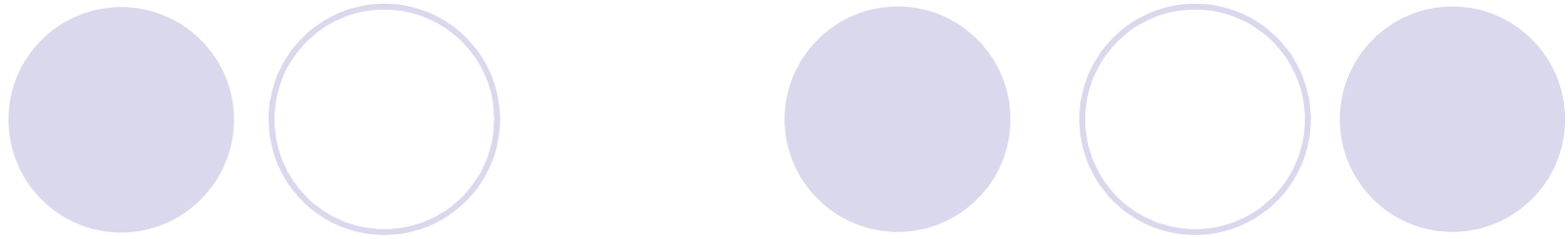


\* **50%** of rubella infections are sub-clinical.

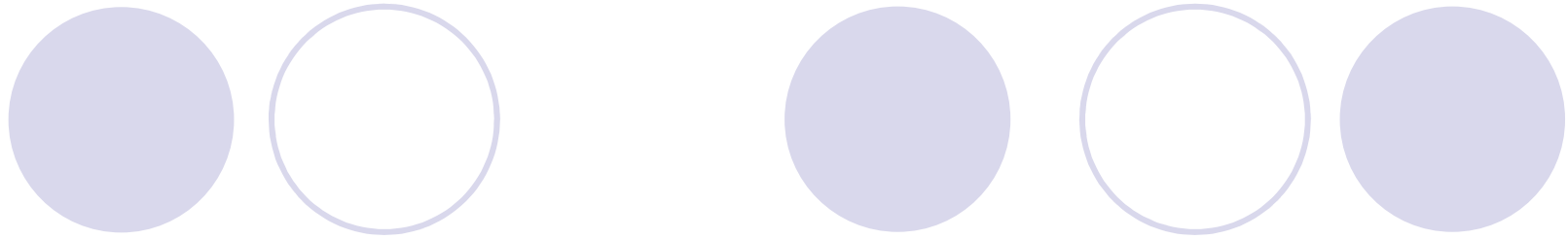
**Diagnosis;** by clinical suspicion, IgM & IgG antibodies titer, virus isolation. Leucopenia is common.

# Complications:

1. Encephalitis
2. Arthralgia and arthritis.
3. Congenital rubella syndrome (CRS), IUD, spontaneous abortions. CRS which occur in up to 90% of infants born to infected women with rubella during the 1<sup>st</sup> trimester of pregnancy. The risk fall to about 10-20% by the 16<sup>th</sup> week of pregnancy, the defect are rare when maternal infection occur after the 20<sup>th</sup> wk of gestation. CRS & fetal death may occur following in apparent maternal rubella. In developing countries 100 000 CRS cases occur yearly.



- The classic triad for **congenital rubella syndrome** is:
- Sensorineural deafness (58% of patients)
- Eye abnormalities—especially cataract and microphthalmia (43% of patients)
- Congenital heart disease—especially patent ductus arteriosus (50% of patients)

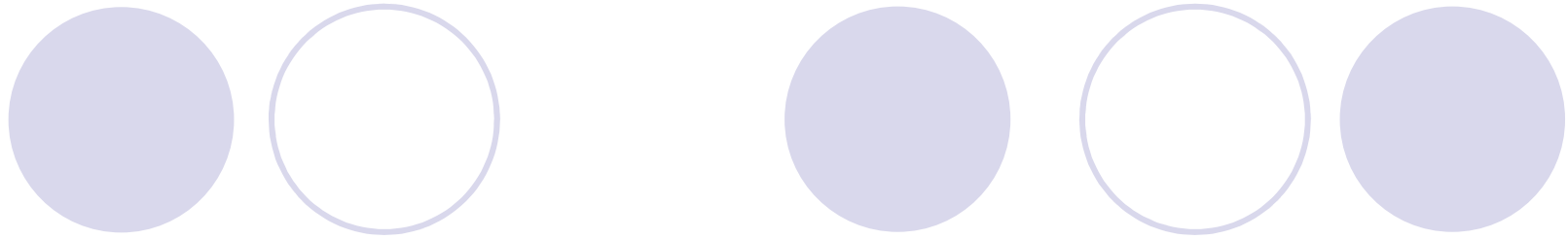


**Agent:** Rubella virus.

**Reservoir:** human.

**IP:** 14-17 days, up to 21 days.





## **Occurrence:**

- Worldwide; endemic levels with epidemic every 7-9 years (no immunization program).
- Now 58% of the total world were using rubella vaccine in their national immunization programs
- In many countries, sustained high rubella immunization have drastically reduced or eliminated rubella & CRS.



## **Mode of transmission:**

1- direct contact with patients or direct droplets.

2- contact with nasopharyngeal secretions.

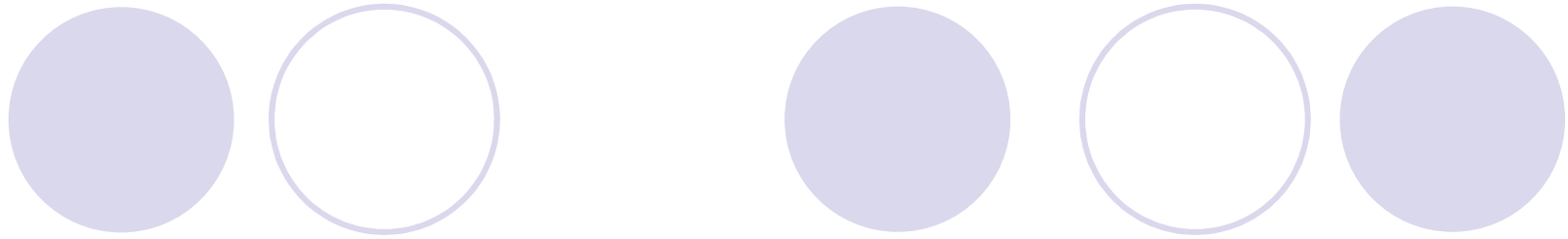
\* Infants with CRS shed large quantities of virus in their pharyngeal secretions & urine, and serve as a source of infection. To the contacts.

## **Period of communicability:**

1 wk before and 4 days after the onset of rash, infants with CRS may shed virus for months after birth.

## **Susceptibility:**

- \*Natural infection → long-life immunity & usually permanent.
- Immunization → life long or long term (depend on contact with endemic cases).
- Passive immunity for 6-9ms.



## **Methods of control in rubella:**

\*Needed primarily to prevent defects to the offspring of women who acquired the disease during pregnancy.



## **A) Preventive measures:**

1. **Health education** of general population about the its danger, mode of transmission and the need for immunization.
2. **Live attenuated rubella vaccine** to prevent rubella infection during a future pregnancy, or as combined measles, mumps, & rubella (MMR) vaccine. single dose of 0.5 ml subcutaneously (mild reaction of fever, mild rash & arthralgia may accompanied with efficacy of 95-100%, not give for infants & pregnancy).



## vaccination strategy:

- Rubella vaccine given for female at adolescent age(11-13yrs) or women at child bearing age for prevention of future CRS and the women should be advised not to become pregnant over the next 3 ms.
- MMR given for children aged 15 months of age (in Iraq), for elimination of rubella and CRS. and the childhood rubella vaccination programs should maintain high levels of coverage ( above 80%) on a long term basis.
- contraindications of rubella vaccine are the same of live attenuated vaccines.

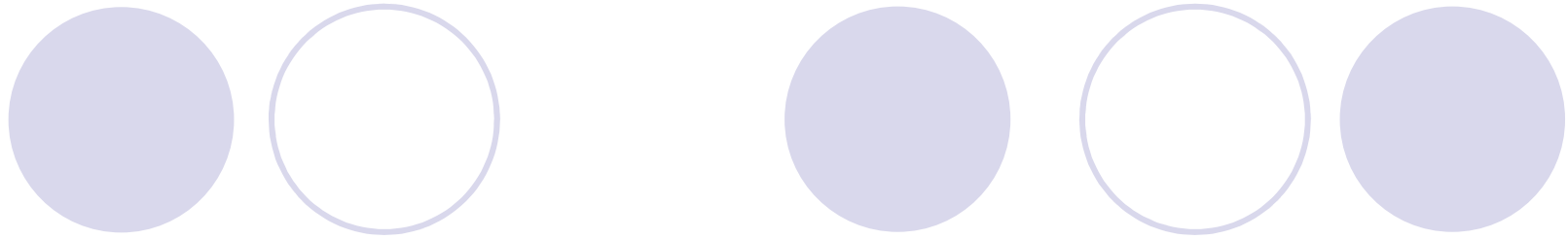
## Who should get MMR vaccine and when?



- Children should get 2 doses of MMR vaccine:
  - The first at 12-15 months of age
  - and the second at 4-6 years of age.
  - These are the recommended ages. But children can get the second dose at any age, as long as it is at least 28 days after the first dose.
- Some adults should also get MMR vaccine: Generally, anyone 18 years of age or older who was born after 1956 should get at least one dose of MMR vaccine, unless they can show that they have had either the vaccines or the diseases.

3. **Surveillance** is needed for rubella and CRS cases.
4. **Serological surveillance** can be used to monitor the impact of vaccination program.
5. **Assessing rubella IgG antibody** in serum samples from women attending antenatal clinics if possible.
6. In case of infection with wild rubella virus early in pregnancy, **counseling** should be provided, serum IgG antibody measured, abortion may be considered in those countries where this is an option. Rubella vaccination during pregnancy is not an indication for abortion.

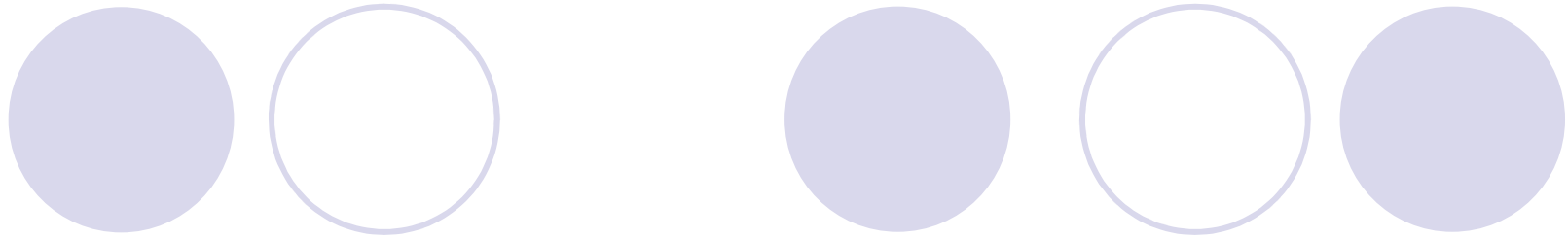




**7. Rubella IG after exposure** early in pregnancy (who would be not in a position to consider abortion), may modify or suppress symptoms, but it may not prevent infection or viraemia (its value has not been established yet).

## **B) Control of pt, contact:**

1. Reporting to health authority.
2. Isolation; contact isolation, attempt should be made to prevent the exposure of non-immune pregnant women. Exclusion of children from school & adults from work for 7 days after onset of rash.
3. Concurrent disinfection.
4. Quarantine ; not applicable.
5. Specific Rx; none.
6. All contacts of CRS infants should be immune to rubella (by vaccination).
7. In hospitals, contact isolation precautions should be applied against infants <12 ms with CRS, unless urine and pharyngeal virus cultures are –ve for rubella virus after 3 ms of age.

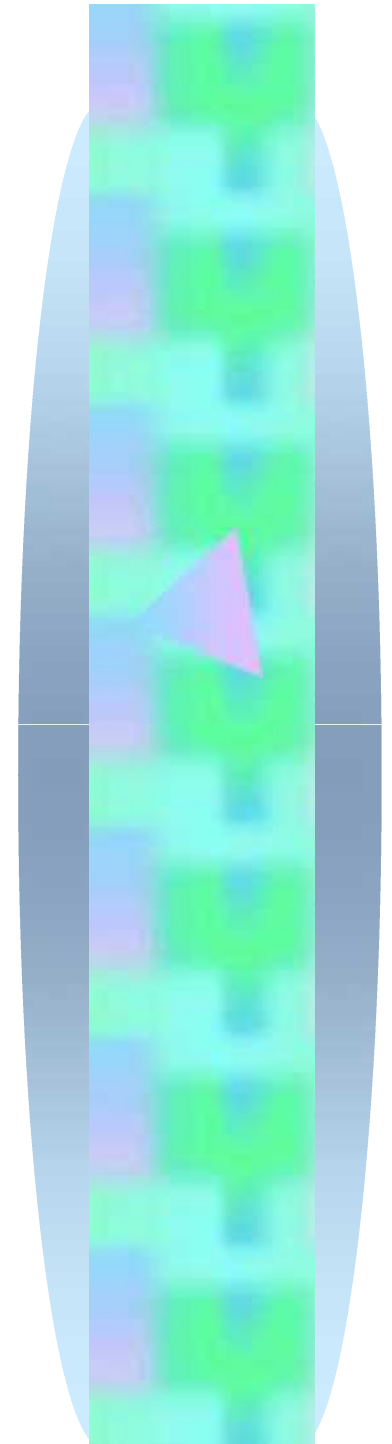


## Epidemic measures:

1. Prompt reporting of all cases and suspected cases.
2. The medical community and general public should be informed about epidemics in order to prevent and protect pregnant women
3. Active surveillance for infants with CRS up to 9 ms after the last reported rubella cases.

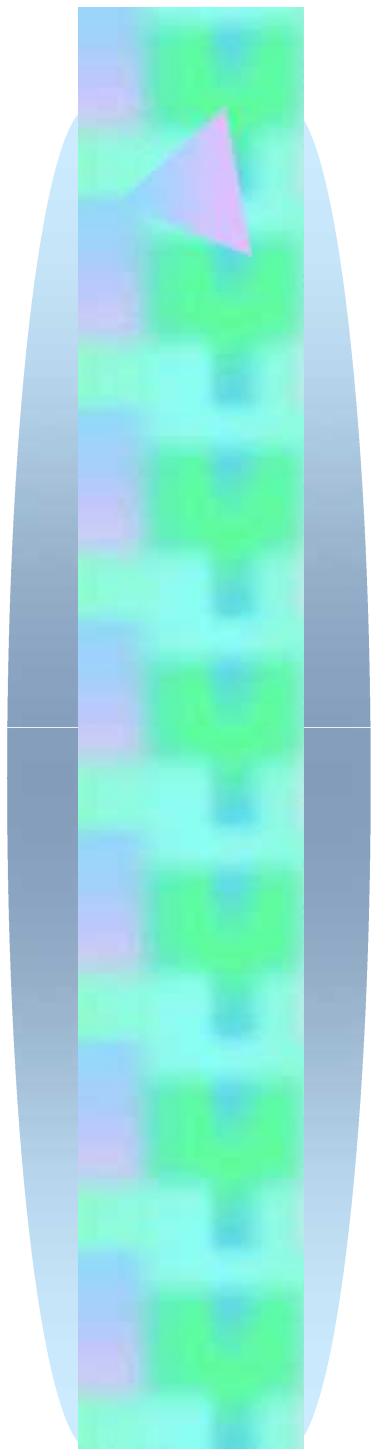
# Mumps

**Infectious parotitis**



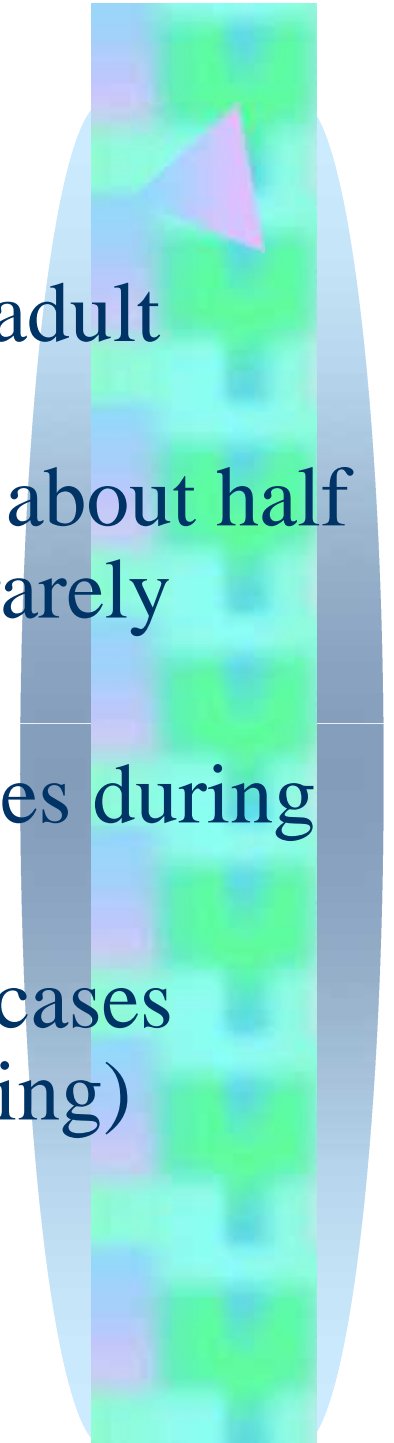
An acute viral disease characterized by: Fever , swelling & tenderness of one or more salivary glands , usually the parotid & some times the sublingual or sub maxillary glands.



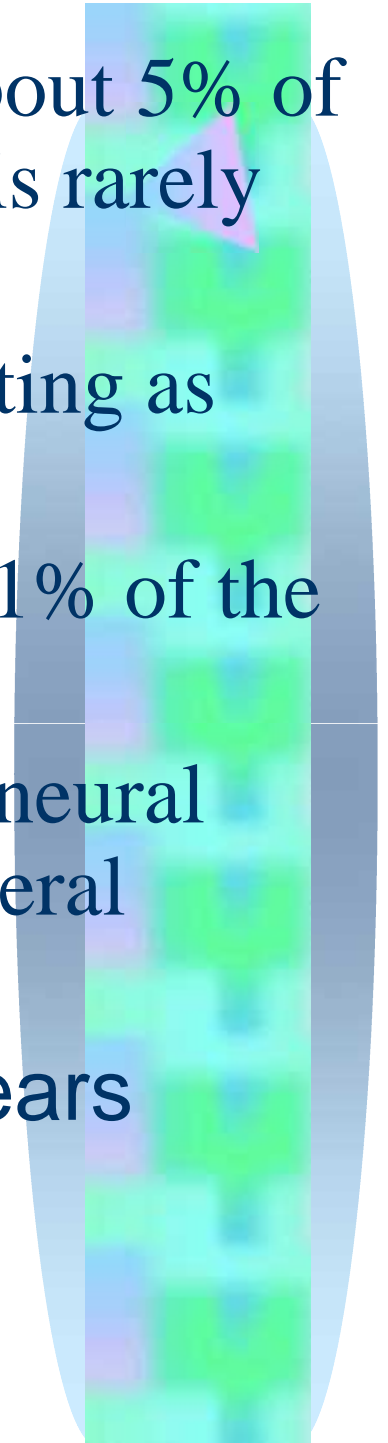


## complications of mumps include:

- Infection of other organ systems
- Mumps viral infections in adolescent and adult males carry an up to 30% risk (**orchitis** or **epididymitis**), which can be quite painful; about half of these result in **testicular atrophy**, and rarely sterility follow.
- Spontaneous abortion in about 27% of cases during the first trimester of pregnancy.
- Mild forms of **meningitis** in up to 10% of cases (40% of cases occur without parotid swelling)



- **Oophoritis** (inflammation of ovaries) in about 5% of adolescent and adult females, but fertility is rarely affected.
- **Pancreatitis** in about 4% of cases, manifesting as abdominal pain and vomiting
- **Encephalitis** (very rare, and fatal in about 1% of the cases when it occurs)
- Profound (91 dB or more) but rare sensorineural **hearing loss**, uni- or bilateral. Acute unilateral deafness occurs in about 0.005% of cases.
- **Mastitis** in up to 30% of females >15 years



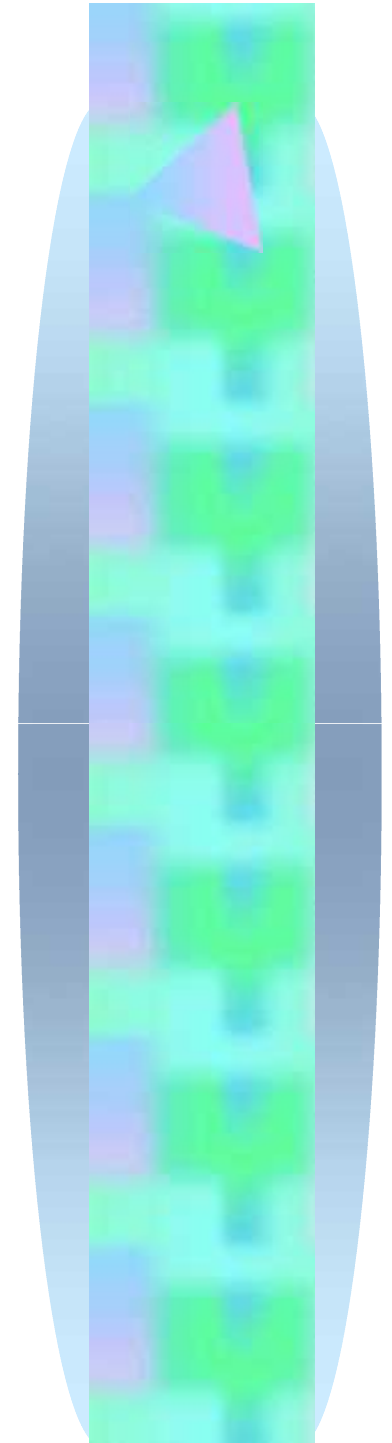


## **Infectious agent:**

Mumps virus: a member of the

Family : Paramyxoviradae

Antigenically relates to the Para influenza virus



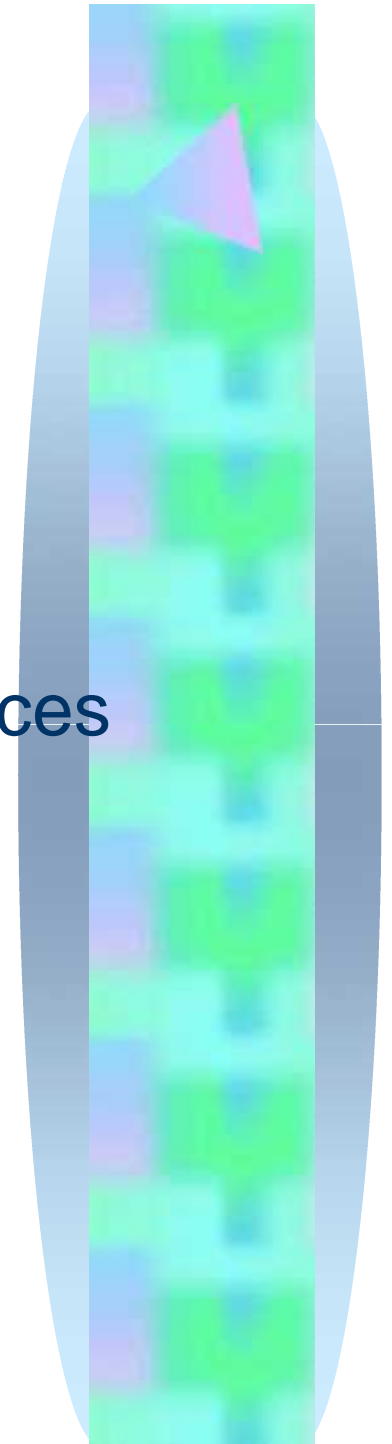
## Occurrence:

- ☹️ Less regularly recognized than other common communicable childhood diseases
- ☹️ 1/3 of the exposed susceptible may have inapparent infection
- ☹️ Winter & spring are seasons of greatest incidence
- ☹️ By the use of effective vaccination program (MMR) the incidence has dramatically decline & the greater risk of infection has shifted toward older children, adolescence & young adults

**Reservoir:** Human.

**Mode of transmission:**

- Direct contact with saliva(respiratory secretions)
- Airborne (virus can also survive on surfaces and then be spread after contact)
- Droplet (enter the eyes, nose, or mouth)



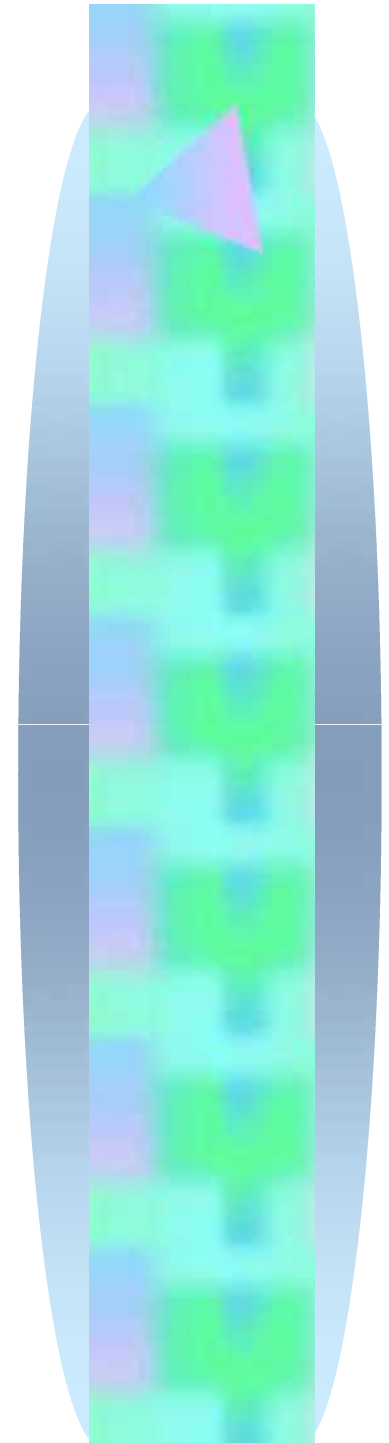
**Incubation period:**

15-18 days

**period of communicability :**

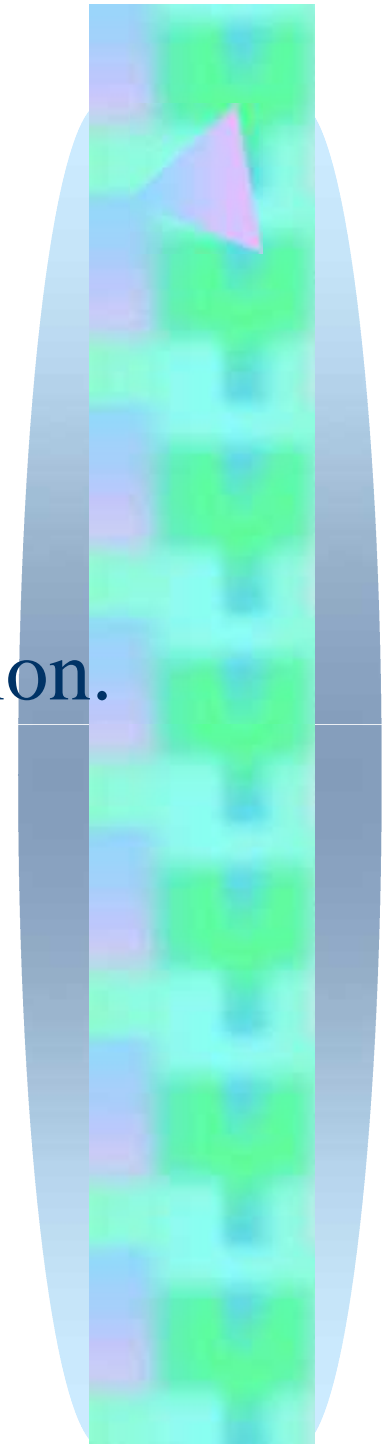
Before  Onset of illness  After  
6-7 days parotitis 9 days

2days  Maximum  4days  
before infectiousness after



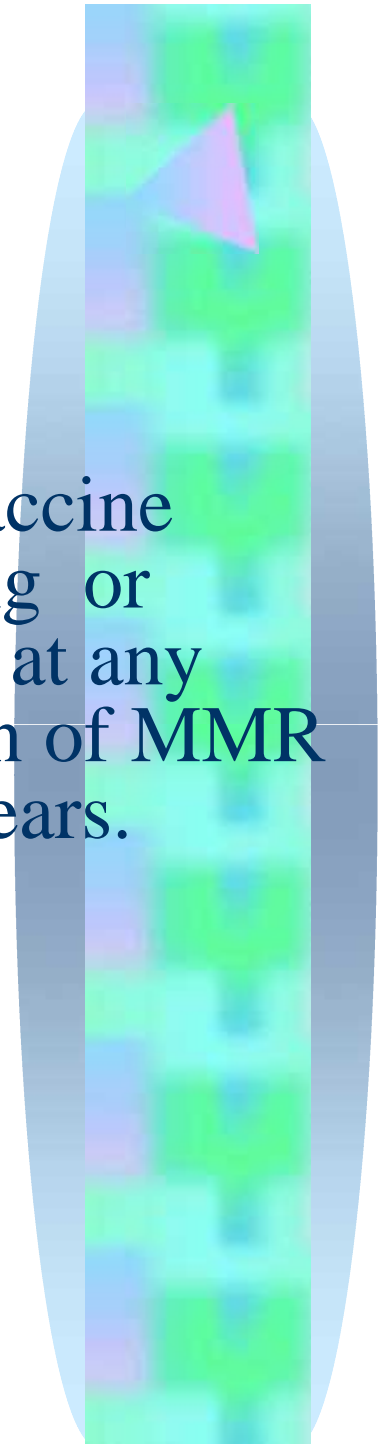
## **Susceptibility & resistance:**

- ✓ Immunity is life long after clinical or inapparent infection and even vaccination.
- ✓ Inapparent infection is communicable



## Prevention:

1. Public education
2. Vaccination (Jerky Lynn strain ) live att. vaccine (MMR) .more than 95% develop long-lasting or probably life long immunity. Administered at any time after 12 months, routine administration of MMR vaccine at ages 12–15 months and at 4–6 years.



The vaccine may be given separately or as part of the MMR immunization vaccine which also protects against measles and rubella. In the US, MMR is now being supplanted by **MMRV**, which adds protection against **chickenpox**

3. Special efforts to vaccinate before puberty all persons with no definite history of mumps or mumps immunization.



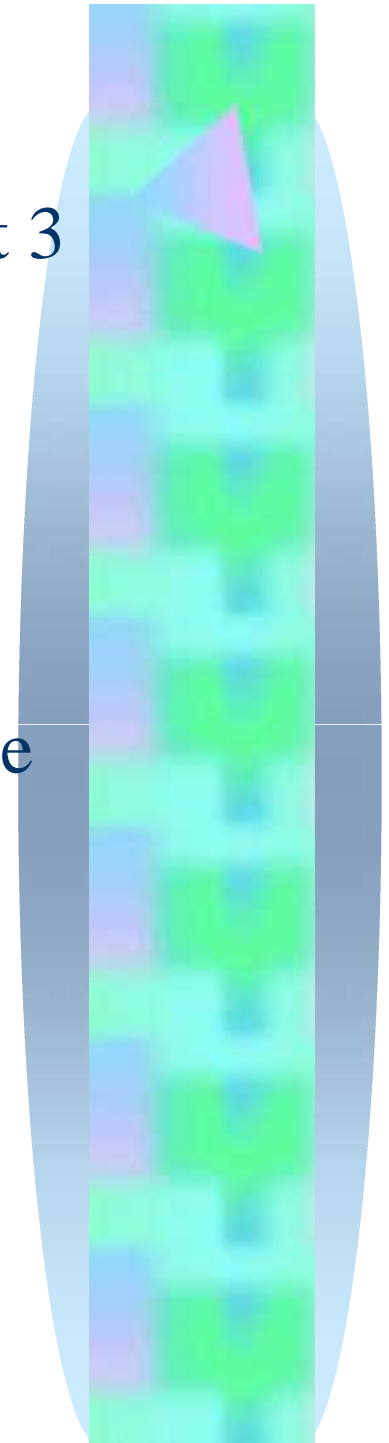
## Contra-indication:

- Immune suppression.
- Pregnancy & planning of pregnancy in the next 3 months

Note : see measles vaccination

## Control:

1. Reporting :reportable
2. Isolation: respiratory isolation for 9 days from onset of swelling .Also school exclusion for the same period
3. Disinfection : of all articles soiled with throat secretion
4. Protection of contact
  - \* Active                      not effective
  - \* Passive                    not effective
5. No specific Rx.





**THANK YOU**

