Rubella

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Note: congenital rubella is covered in a separate chapter.
Epidemiology in New Zealand

The incidence of rubella in New Zealand has decreased since the last national epidemic in 1995. A cohort of women born in the years 1965 to 1967 may be less likely to have been immunised as children than women born before or later.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz.

Case definition

Clinical description

An illness with a generalised maculopapular rash, fever and one or more of the following:
- arthralgia/arthritis
- lymphadenopathy
- conjunctivitis.

Rubella often presents atypically and is difficult to diagnose clinically with certainty. Up to 50 percent of rubella infections are subclinical. If accurate diagnosis is important, it must be laboratory confirmed.

Laboratory tests for diagnosis

If the case received a vaccine containing the rubella virus in the 6 weeks prior to symptom onset then laboratory confirmation requires:
- evidence of infection with a wild-type virus strain obtained through genetic characterisation.

If the case did not receive a vaccine containing the rubella virus in the 6 weeks prior to symptom onset, then laboratory confirmation requires at least one of the following:
- detection of IgM antibody specific to the virus
- IgG seroconversion or a significant rise (four-fold or greater) in antibody level for the virus between paired sera tested in parallel where the convalescent serum was collected 10 to 14 days after the acute serum
- isolation of rubella virus by culture
- detection of rubella virus nucleic acid.

Consult a reference laboratory if testing is unavailable locally.

1 In New Zealand, genetic characterisation is generally only performed for measles virus.
Case classification

- **Under investigation:** A case that has been notified, but information is not yet available to classify it as probable or confirmed.

- **Probable:** A clinically compatible illness.

- **Confirmed:** A clinically compatible illness that is laboratory confirmed or epidemiologically linked to a confirmed case.

- **Not a case:** A case that has been investigated and subsequently found not to meet the case definition.

Note: Recent immunisation with the measles-mumps-rubella vaccine (MMR) may also result in detectable anti-rubella IgM or a significant increase in anti-rubella IgG. Because laboratories do not necessarily have access to this information, all results consistent with possible rubella infection should be reported to a medical officer of health.

Spread of infection

**Incubation period**

14–23 days, commonly 16–18 days.

**Mode of transmission**

Children and adults transmit the virus in their nasopharyngeal secretions by droplet spread or direct contact.

**Period of communicability**

From about 1 week before to 1 week after the onset of the rash.

Notification procedure

Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Management of case

**Investigation**

Ascertain if there is a history of vaccination, possible contacts and travel. Ensure laboratory confirmation by serology or detection of virus in clinical specimens has been attempted. Nasal, throat, urine, blood and cerebrospinal fluid specimens can yield the virus. Discuss testing with an infectious diseases physician or a microbiologist.
**Restriction**
In health care facilities, apply droplet and contact precautions until at least 7 days after onset of a rash in postnatal rubella. Non-immune pregnant women, in particular, should not have contact with an infectious case.

Exclude from any early childhood service, school, institution or work until fully recovered and for 7 days after onset of rash. Cases should avoid contact with women of childbearing age.

**Treatment**
Nil specific.

**Counselling**
Advise the case and their caregivers of the nature of the infection and its mode of transmission.

**Management of contacts**
Identify contacts for investigation, immunoglobulin and counselling where appropriate.

**Definition**
All people with close unprotected contact (for example, household, school, workplace, military camp) with the case during the week before onset of illness or during the subsequent period of communicability.

**Investigation**
Check immunisation status of contacts.

Advise any pregnant contact to get in touch with her lead maternity carer (LMC) to check her rubella status.

Pregnant contacts with confirmed immunity can be reassured that the likelihood of rubella infection is remote. This applies if:

- a previous antibody screening test has detected a protective level of antibodies, and this has been documented, OR
- she has received at least two documented doses of rubella vaccine, OR
- one dose of vaccine followed by a rubella antibody screening test showing a protective level of antibodies has been documented.
Pregnant contacts whose immunity to rubella has not been confirmed must be investigated serologically as soon as possible in liaison with their LMC and primary health care doctor. The rash is not diagnostic and infection can occur without clinical symptoms. Discuss testing with an infectious diseases physician or a microbiologist.

The laboratory should test for rubella IgM and IgG. No pregnant woman under 20 weeks’ gestation should have rubella diagnosed on IgM alone. The laboratory should store (frozen) an aliquot of serum for later testing in tandem with a follow-up sample.

- If the sample is IgM positive, regardless of IgG, then a full assessment of the serological status is needed. Results must be interpreted in conjunction with the time lapse since exposure to determine whether or not acute infection has occurred. Consider further serum samples and/or testing in a reference laboratory.

- If the sample is negative for both IgM and IgG, then the woman is susceptible, and if she remains asymptomatic then a second blood specimen should be obtained 28 days after last exposure to the case. If, however, the woman develops clinical symptoms suggestive of rubella, a second blood specimen should be obtained as soon as possible. A third blood specimen may be necessary 7 days after the onset of symptoms.

- If IgG is detected and IgM is not detected, and the IgG is less than 15 IU/mL and there is a history of onset of rash in the previous 10 days, request further serum.

Diagnosis and management based on any the above tests should be discussed with an obstetrician or infectious diseases physician. Management of primary rubella or secondary re-infection depends on the gestation of the pregnancy and when the infecting occurred.

Pregnant contacts who are not immune should also be offered MMR vaccination after delivery.

**Restriction**

Nil.

**Prophylaxis**

The routine use of immunoglobulin (IG) for post-exposure prophylaxis of rubella in early pregnancy is not recommended. It may be considered if termination of the pregnancy is not an option. Although IG has been shown to reduce clinically apparent infection in the mother, there is no guarantee that it will prevent fetal infection.

Post-exposure immunisation of non-pregnant women is recommended, especially if given within 3 days of exposure. All women of childbearing age should be screened for rubella antibody and immunised if necessary.
Pregnant women should be screened antenatally. Those with a rubella antibody level below 15 IU/mL should be counselled to avoid contact with cases of rubella while pregnant, and should be offered MMR vaccination after delivery. See the *Immunisation Handbook* (Ministry of Health 2011) for further information.

Immunisation of a person who is incubating natural rubella or who is already immune is not associated with an increased risk of adverse effects.

**Counselling**

Advise all contacts of the incubation period and typical symptoms of rubella. Encourage them to seek early medical attention if symptoms develop. Pregnant contacts may require additional advice; refer to an appropriate specialist.

**Other control measures**

**Identification of source**

Check for other cases in the community and look for associations. Also check any recent travel and possible outbreaks in areas visited.

**Disinfection**

Generally not needed. Clean and disinfect surfaces and articles soiled with upper respiratory tract secretions, urine or other infectious bodily fluids.

**Health education**

Medical officers of health are responsible for health education.

**Reporting**

Ensure complete case information is entered into EpiSurv.

If a cluster of cases occurs, inform the Ministry of Health Communicable Diseases Team and outbreak liaison staff at ESR, and complete the Outbreak Report Form.

**References and further information**