



# RUBELLA, ACUTE or POSTNATAL

## (German Measles, 3-day Measles)

(See also RUBELLA, CONGENITAL SYNDROME)

1. **Agent:** Rubella virus

2. **Identification:**

a. **Symptoms:** Commonly a mild acute febrile disease frequently demonstrating an erythematous maculopapular rash and few constitutional symptoms, which may include low-grade fever, headache, malaise, mild coryza, and conjunctivitis. Symptoms are often minimal; 25-50% of cases may be sub-clinical or in-apparent. Post-auricular, sub-occipital, or post-cervical lymphadenopathy is common. Transient polyarthralgia and polyarthritis occasionally occur in children and are common in adolescents and adults, especially females. Prodrome may or may not be present. Encephalitis and thrombocytopenia are rare. Principal concern is congenital rubella syndrome if disease occurs during pregnancy.

b. **Differential Diagnosis:** Refer to **DIFFERENTIAL DIAGNOSIS OF EXANTHEMS** in Appendix A.

c. **Diagnosis:** Presence of rubella-specific IgM antibodies or a  $\geq 4$ -fold rise in HI or CF antibody titer in paired sera is diagnostic of recent infection. Virus isolation from throat, urine, or body fluids is also acceptable. IgM antibody is present only in primary infection and has a half-life of about 7 days. It is usually undetectable after 4 weeks. Since decay is rapid, a negative IgM test must be interpreted cautiously. A clinical diagnosis alone is unreliable and unacceptable except in the control of an outbreak. False positive IgM test results have been seen in persons with parvovirus infection, mononucleosis, or rheumatologic disease. Parvovirus IgM, heterophile antibody, and rheumatoid factor tests should be done to rule out false positive rubella IgM results.

3. **Incubation:** 16-18 days; range 14-23 days.

4. **Reservoir:** Human

5. **Source:** Nasopharyngeal secretions, blood, and urine of infected person.

6. **Transmission:** Person to person via direct or droplet contact from nasopharyngeal secretions. The peak incidence of infections is late winter to early spring. The virus may be transmitted through urine. Transplacental transmission occurs from mother to fetus.

7. **Communicability:** From approximately 1 week before to 5-7 days after onset of rash.

8. **Specific Treatment:** Supportive.

9. **Immunity:** Disease confers lifelong immunity. Available data suggest that one dose of rubella virus vaccine confers long term, probably life-long, immunity.

### REPORTING PROCEDURES

1. **Reportable.** (Section 2500, *California Code of Regulations*.) Report case or suspect case within 7 calendar days from the time of identification by mail, telephone, fax, or electronic report.

2. **Report Form:** [RUBELLA \(GERMAN MEASLES\) CASE REPORT \(PM 358\)](#).

3. **Epidemiologic Data:**

a. Immunization history.

b. Possible source of infection.

c. Laboratory reports of antibody test and virus isolation.

d. Contacts who are in the first five months of pregnancy.

e. Group contacts.



## CONTROL OF CASE, CONTACTS & CARRIERS

Investigate each case within 7 days. Report institutional cases to the Immunization Program.

### CASE:

**Precautions:** Exclude from school or work and isolate from susceptible pregnant women for 7 days after onset of rash. For hospitalized patients, contact isolation is required for 7 days after onset of rash.

### CONTACTS:

The goal of rubella case investigation is to prevent exposure of susceptible pregnant women to rubella, and thereby prevent cases of CRS. It is essential that potentially susceptible, exposed pregnant women be identified, evaluated, and counseled. Identify settings where transmission may have occurred (e.g., day care, work, church, school, college, health care facility).

Ensure that susceptible persons are rapidly vaccinated and maintain active surveillance for 2 incubation periods after the last case's infectious period. All persons at risk who cannot readily provide laboratory evidence of immunity or a documented history of vaccination, on or after their first birthday, should be considered susceptible and should be vaccinated if there are no contraindications.

Immunization of contacts will not necessarily prevent illness or infection from current exposure, but is recommended to provide protection against subsequent exposures should current exposure not result in infection. Immune globulin (IG) is not indicated except possibly in susceptible pregnant women who will not consider abortion under any circumstances. IG's value though has not been established.

1. **Pregnant Contacts:** Draw a blood sample immediately for antibody test to establish immunity if not previously known. Request the laboratory to save an aliquot of frozen blood for future test. If susceptible, re-draw blood 3 weeks later for paired serological testing with first blood specimen. If antibody not detectable in second specimen, repeat test again 3 weeks later. Conduct paired serological test of the first and third blood

specimens. If antibody is present in the second or third specimen, but not the first specimen, recent infection is assumed to have occurred. Counsel and/or refer patient to personal physician for possible abortion.

2. **School Exclusion of Un-immunized Contacts:** In schools where a case of rubella has been reported, exclude all persons exempted from rubella vaccination because of medical or personal-beliefs waiver from 7 days after first exposure to 23 days after last exposure to last reported case, unless the individual can demonstrate proof of rubella immunity. Immunization after exposure has not been shown to be effective in preventing disease.

## PREVENTION-EDUCATION

1. Immunization should be administered unless documented evidence of rubella immunization or serologic evidence of naturally acquired immunity is provided. Immunization or proven immunity by blood testing is required for school entry. California law requires exclusion from school if conditions for admission are not fulfilled or pupil is un-immunized and is subsequently exposed to a rubella case (*California Code of Regulations*, Title 17).
2. For non-immune women, rubella vaccine, as MMR, may be given postpartum concurrently or after the administration of anti-RhO or other blood products; serologic testing should be done 8 weeks later to confirm seroconversion if patient received anti-RhO. Routine testing of post-pubertal women before immunization is not necessary. Breastfeeding is not a contraindication to postnatal immunization.
3. Advise women of childbearing age to avoid becoming pregnant for 4 weeks after receiving the vaccine. Inadvertent immunization is not an indication for abortion.
4. Studies have shown no evidence that congenital rubella syndrome (CRS) occurs in offspring of women vaccinated during pregnancy. Thus the observed risk of vaccine induced malformations is 0%; however, there is a theoretical risk. Since the risk to the fetus caused by vaccination during pregnancy is so low, termination of



pregnancy is not recommended for women vaccinated before pregnancy status was known.

5. Arthralgia and transient arthritis can occur in about 25% of susceptible post-pubertal females 7-21 days after vaccination.
6. All allied hospital personnel should be immune. Ideally proof of immunity or receipt of vaccine should be required for employment.
7. Educate caretakers on how to disinfect fomites soiled with body secretions.

### DIAGNOSTIC PROCEDURES

Clinical and epidemiological histories are required to aid the laboratory in test selections.

#### 1. Serology:

- a. **Diagnosis of acute case:** paired sera required for IgG and a single specimen for IgM. IgG test preferred since false-positive IgM tests may occur. For IgG test, collect first blood specimen as early as possible. Collect the second approximately 2 weeks after the first (3 weeks apart for an exposed person who does not develop a rash illness). For IgM test, collect serum 2-28 days after rash onset. If possible, both tests should be done on acute sample.

Send each specimen as it is collected. Do not store. The Virology Laboratory will send a request for a second specimen if it is required.

- b. **Immunity status testing:** Only one specimen required. Request an IgG test only. Available to DHS prenatal clinic patients and employees in hospital or clinic settings who have contact with patients.

**Container:** Serum separator tube (SST, a red-gray top vacutainer tube).

**Laboratory Form: Test Requisition and Report Form H-3021**

**Examination Requested:** Rubella serology. Specify IgM or IgG paired or screening.

Indicate on lab slip if screening is for a prenatal patient or an employee.

**Material:** Whole clotted blood.

**Amount:** 7-ml.

**Storage:** Refrigerate until transport.

2. **Culture:** Viral isolation. Virus can be isolated from throat swabs, urine, CSF, blood, or body fluids. Consult with the Immunization Program.

**Specimen Container:** Viral culturette.

**Laboratory Form: Test Requisition and Report Form H-3021**

**Submission Requirements:** Call Virology Laboratory for requirements.

**Turn-around Time:** 1-2 weeks.

**Examination Requested:** Rubella isolation.