



RUBELLA, ACUTE or POSTNATAL

(German Measles, 3-day Measles)

(See also RUBELLA, CONGENITAL SYNDROME)

Agent: Rubella virus

contagious from 7 days before to 7 days after the rash appears.

Epidemiology: Incidence of rubella in US has decreased by more than 99% in the United States and has not been endemic since 2004.

Specific Treatment: Supportive. There is no specific antiviral therapy for rubella infection.

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. 50-80% of infected persons develop a maculo-papular rash that starts on the face and progresses from head to feet, becomes generalized in 24 hours and lasts a median of 3 days. 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, especially during the first trimester.

Immunity:

- Documentation of vaccination with at least one dose of MMR or other live rubella-containing vaccine on or after first birthday.
- Serological evidence of immunity.
- History of laboratory confirmed rubella disease.

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

<http://publichealth.lacounty.gov/acd/procs/b73/Aappendix.pdf>

DIAGNOSTIC LABORATORY:

• **RT-PCR:**

- **Nasal or throat swab:** Virus may be detected from 1 week before to 2 weeks after rash onset. However, maximum viral shedding occurs up to day 4 after rash onset.
- **Urine specimen:** should be collected if **measles** is also suspected.
- **Specimen Container:** Liquid viral or universal transport media.
- **Laboratory Form:** Test Requisition and Report Form H-3021
- **Submission Requirements:** Call Virology Laboratory for requirements.
- **Turn-around Time:** 10 days.
- **Examination Requested:** Rubella RT-PCR.

Diagnosis: Clinical diagnosis of rubella is unreliable; therefore, cases must be laboratory confirmed.

Serology:

- IgM: IgM antibody detected through EIA 4-30 days after onset of illness/rash can be suggestive of infection. However, IgM antibodies may not be detectable before day 5 after rash onset. In case of a rubella IgM-negative result in specimens taken before day 5, serologic testing should be repeated on a specimen collected after day 5. IgM can be false-positive due to presence of rheumatoid factors

Incubation: 17 days; range 12-23 days.

Reservoir: Human

Transmission: Person to person via inhalation of respiratory aerosols when infected person sneezes, cough, or talks. Transplacental transmission occurs from mother to fetus.

Communicability: People are most contagious when the rash is erupting but they can be



- (rheumatological disease), cross-reacting IgM or infection with other viruses
- IgG: A \geq 4-fold rise in rubella-specific IgG in paired sera is also a diagnostic of recent infection. The first serum sample should be collected as soon as possible after onset of illness and the second serum sample should be collected about 7-21 days after the first specimen.
 - **Specimen 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.
 - **Material:** Whole clotted blood.
 - **Storage:** Refrigerate until transport.

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

CDC CASE CLASSIFICATION:

Confirmed: A case with or without symptoms who has laboratory evidence of rubella infection confirmed by one or more of the following laboratory tests.

- Isolation of rubella virus OR
- Detection of rubella-virus specific nucleic acid by PCR
- IgG seroconversion or a significant rise between acute and convalescent phase titers in serum
- Positive serological test for rubella IgM antibody

OR

An illness characterized by all of the following:

- Acute onset of generalized maculopapular rash and
- Temperature greater than 99.0 degrees F or 37.2 degrees; and
- Arthralgia, arthritis, lymphadenopathy, or conjunctivitis; and
- Epidemiologic linkage to a laboratory-confirmed case of rubella

Probable: In absence of a more likely diagnosis, an illness characterized by all of the following:

- Acute onset of generalized maculopapular rash and
- Temperature greater than 99.0 degrees F or 37.2 degrees; and
- Arthralgia, arthritis, lymphadenopathy, or conjunctivitis; and
- Lack of epidemiologic linkage to a laboratory-confirmed case of rubella; AND
- Non-contributory or no serologic or virologic testing

REPORTING PROCEDURES

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

Epidemiologic Data:

1. Immunization history: Date of immunizations, number of doses
2. Possible source of exposure.
3. Signs and symptoms (rash, fever, arthritis) with date of each symptom start date
4. Travel history
5. Laboratory reports of antibody test and virus detection.
6. Contacts who are in the first five months of pregnancy.

CONTROL OF CASE, CONTACTS & CARRIERS

CASE: Investigate each case within 7 days. Report institutional cases to the Vaccine Preventable Disease Control Program.

If a patient is pregnant, prenatal care providers should receive rubella infection control guidance before an exposed pregnant woman presents for care.

Precautions: Exclude from school or work, isolate individual 7 days after onset of rash, and isolated from susceptible pregnant women for 7 days after



onset of rash. For hospitalized patients, droplet precautions are required for 7 days after onset of rash.

CONTACTS:

Definition: Any direct and/or face-to-face contact with a patient with rubella during the infectious period (7 days before to 7 days after rash onset)

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 by prenatal care provider. 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.

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.

Exposure in Healthcare settings: Exposed

health care personnel without adequate evidence of immunity should be excluded from duty beginning 7 days after first exposure to rubella through either 23 days after last exposure or 7 days after rash appears.

Exposed susceptible patients should be discharged less than 7 days after exposure if possible. If they cannot be discharged, they should be isolated in droplet precautions for 23 days after last exposure to rubella.

School Exclusion of Un-immunized Contacts:

In schools where a case of rubella has been reported, exclude all nonimmune and persons exempted from rubella vaccination because of medical waivers 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. Additionally, any exposed persons without documented immunity to rubella should receive rubella vaccination except in situations when it is contraindicated. Immunization after exposure has not been shown to be effective in preventing disease but it will protect these individuals in the future. Unvaccinated persons who receive MMR vaccine may be immediately readmitted to school provided all persons without documentation of immunity have been excluded.

PREVENTION-EDUCATION

Immunization should be administered unless documented evidence of rubella immunization or serologic evidence of naturally acquired immunity is provided. Immunization 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).

For non-immune women, rubella vaccine, as MMR, may be given postpartum. However, although previous administration of anti-RhO or other blood products does not generally interfere with an immune response, 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.

Advise women of childbearing age to avoid becoming pregnant for 4 weeks after receiving the



vaccine. Inadvertent immunization is not an indication for abortion.

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.

Arthralgia and transient arthritis can occur in about 25% of susceptible post-pubertal females 7-21 days after vaccination.

All allied hospital personnel should be immune. Ideally proof of immunity or receipt of vaccine should be required for employment.

Educate caretakers on how to disinfect fomites soiled with body secretions.