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# Rubella infection

## Frequently Asked Questions by Health Care workers

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### 1. What is rubella?

Rubella, or German measles, is caused by the rubella virus and presents with fever and a maculo-papular rash. It is a mild self-limited disease in children and adults, but can have severe consequences in pregnant women who are infected in their first trimester, leading to congenital rubella syndrome (CRS). Rubella is targeted for elimination by 2030, according to the WHO Strategic Plan for Measles and Rubella, 2021-2030<sup>1</sup>. It is often not possible to distinguish measles from rubella clinically, and so laboratory testing should be done. Both measles and rubella are category 1 notifiable medical conditions, which require immediate reporting on clinical suspicion followed by a written or electronic notification to the Department of Health within 24 hours.

### 2. Who can get rubella?

Rubella infection leads to life-long immunity and protection from subsequent infection. Therefore, any person who has not had prior rubella infection, nor rubella vaccination is susceptible to rubella.

### 3. Where does rubella occur in South Africa?

Rubella virus circulates all over South Africa. The number of cases usually increase in late winter and early spring when seasonal outbreaks occur every year. The average age of infection is usually under five years of age. The non-pharmaceutical interventions (social distancing, wearing of masks and hand washing) that were implemented during the COVID-19 pandemic successfully interrupted rubella transmission, and the usual seasonal pattern of disease transmission was interrupted in 2020-2022. Very few cases of rubella were seen during these years.

### 4. How is rubella transmitted?

Rubella is transmitted through direct or droplet contact from the oropharyngeal secretions. The infection has an average incubation period of 17 days with a range of 12–23 days. Rubella virus is less infectious than other viral respiratory infections. The basic reproductive number (number of persons infected person from a single infectious person) is around 2-3, compared with measles which ranges from 11-18. Infected persons shed the virus from 7 days before to 7 days after the onset of the rash, however, a person is most infectious when the rash is present. Infants with CRS shed large quantities of virus from body secretions for up to 1 year after birth and can therefore transmit rubella to persons caring for them who are susceptible to the disease.

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<sup>1</sup> <https://www.immunizationagenda2030.org/resources/32-measles-and-rubella-strategic-framework-2021-2030#:~:text=The%20Measles%20and%20Rubella%20Strategic,national%20strategies%20and%20operational%20plans>.

## **5. What are the signs and symptoms of rubella?**

Rubella presents with a rash, a low-grade fever (<39°C), nausea, sore throat, mild conjunctivitis (red eyes), headache, cough, runny nose and swollen lymph nodes in the neck. The rash usually starts on the face and neck before spreading to the rest of the body. The rash lasts for about 5-7 days.

## **6. What are the complications resulting from rubella infection?**

Most cases of rubella resolve spontaneously with no complications. Occasionally adult women with rubella may develop arthritis that resolves after the infection. In rare cases, rubella may lead to encephalitis or thrombocytopenia, leading to spontaneous bleeding. The most serious complication of rubella is congenital rubella syndrome (CRS). Outcomes of rubella infection in pregnancy may include foetal loss, abnormal foetal growth, and severe birth defects including congenital heart disease, sensorineural deafness and congenital cataracts. Less common features include rash at birth ('blueberry muffin baby'), hepatosplenomegaly, microcephaly and developmental delay. CRS is more common following infection in the first trimester of pregnancy. However, neonates who are infected after the first trimester may still develop infection, although congenital malformations are less likely.

## **7. How is rubella diagnosed?**

Acute rubella infection may be identified by serological testing or by PCR detection of virus RNA in persons with compatible clinical symptoms. Rubella antibodies of the IgM class are detected within days of rash onset, whilst throat swabs may be positive for RNA during the prodromal phase. The diagnosis of CRS is also made through detection of anti-rubella IgM in neonates. IgM may persist for up to 9-12 months. PCR may be a useful diagnostic assay on respiratory secretions or urine of neonates for the first year of life. Cataract tissue may also be positive for rubella virus for many months after birth. Pregnant woman presenting with a history of fever and rash should be investigated with serological testing, followed by IgG avidity testing to determine how recently the mom was infected, especially when IgM results are negative or equivocal. Health care workers should check their serostatus and if susceptible to rubella, should be vaccinated. In all cases, a serum sample should be submitted to the NICD accompanied by a completed case investigation form (found at <https://www.nicd.ac.za/diseases-a-z-index/rubella/>).

## **8. How is rubella treated?**

There is no specific treatment for rubella. Symptoms can be managed by rest and medication to control fever.

## **9. How is rubella prevented?**

Rubella vaccine is a live, attenuated vaccine that is usually administered with measles (as MR) and sometimes with mumps vaccine (as MMR). Rubella vaccine has an excellent safety profile, with the only serious adverse effect being thrombocytopenia. Rubella vaccine should not be administered to pregnant women as there is a very small chance of teratogenesis during the first trimester. Vaccination is effective in preventing rubella and confers life-long immunity.

Rubella vaccination is currently not part of the national expanded program on immunisation (EPI) schedule, however, MMR vaccine is available in the private sector. It is anticipated that the MR vaccine

will be included in the EPI programme in 2024. Rubella vaccine will be administered with measles vaccine at 6 and 12 months. The current measles-only vaccine (MeasBio®) will be replaced with a single vaccine containing measles and rubella vaccines.

Ideally, health care workers should be screened for rubella susceptibility (with antibody testing) and vaccinated if they are not immune. Pregnant woman should also be screened for susceptibility (with antibody testing) and symptoms. If a pregnant woman has symptoms of rubella, they should be tested for rubella antibodies. If anti-rubella IgM is positive, they should consult their clinician at an ante-natal clinic as soon as possible. If they are susceptible (ie IgG negative) they should not be vaccinated, but should avoid contact with persons with fever and rash for at least the first trimester, but ideally for the entire duration of the pregnancy. Women intending to become pregnant should test for rubella and if IgG negative, may choose to purchase the measles, mumps, and rubella (MMR) vaccine from the private sector this year, and delay conception until 6-8 weeks post vaccination.

#### **10. Where can I find out more information?**

Healthcare workers may contact the NICD hotline after hours and in an emergency for clinical or medical advice. The Centre for Vaccines and Immunology may be reached on 011-386-6536.