

## **Congenital Rubella Syndrome Frequently Asked Questions for Health Professionals**

### **What is congenital rubella syndrome?**

Maternal rubella infection in pregnancy may result in foetal loss or major defects affecting almost all organ systems. Manifestations may be delayed for up to 4 years. The congenital rubella syndrome (CRS) comprises eye, ear, heart and neurological defects. Deafness is the most common and sometimes the only manifestation, especially when infection occurs after 16 weeks gestation.

The overall risk of defects depends on the stage of pregnancy. If followed up after birth, up to 85% of infants infected in the first 8-10 weeks will be affected. The risk of foetal damage declines to about 10-20%, with infection occurring between 11-16 weeks and with only deafness occurring up to 20 weeks of pregnancy. Defects are rare after 20 weeks.

### **How can CRS be prevented?**

The National Immunisation Advisory Committee recommends that all seronegative women of child bearing age who do not have evidence of being protected against rubella should be offered 1 dose of MMR (measles, mumps and rubella) vaccine (see below for health care workers).

### **What is MMR vaccine?**

The MMR vaccine contains weakened live strains of measles, mumps and rubella viruses. The vaccine works by stimulating the immune system to build up protection against these diseases. It is recommended routinely at 12 months and a second dose at 4 to 5 years of age in Junior Infants.

The rubella component of the vaccine is highly effective and people can generally be considered to be immune after one dose. However two doses of MMR are required to give protection against measles and mumps.

Anyone who receives the MMR vaccine can not pass these viruses on to someone else.

### **What is evidence of protection against rubella?**

Satisfactory evidence of protection against rubella includes

- documentation of having received at least 1 dose of rubella containing vaccine

or

- a positive antibody test (IgG level >10IU/ mL) for rubella.

### **What about if someone with a documented history of rubella vaccination is found to have negative serology?**

This happens occasionally. Such persons may be given a dose of MMR vaccine and do not need to be retested for serological evidence of rubella immunity. Additional doses of MMR vaccine are not indicated even if they have found to be seronegative in the future.

### **What about health care workers?**

Health-Care Workers (HCWs) require MMR vaccination for themselves and because they may transmit rubella and also measles or mumps to vulnerable groups. HCWs who do not have evidence either of immunity to rubella or of documented evidence of having received 2 doses of MMR vaccine should be given 2 doses of MMR, separated by at least 1 month.

### **Why do HCWs require 2 doses of MMR vaccine?**

HCWs require 2 doses to ensure they are fully protected against the measles and mumps components of the MMR vaccine.

### **What about a woman planning a pregnancy who is not immune to measles?**

If a woman does not have a history of measles infection or does not have documentary evidence of having received two doses of MMR vaccine then she requires two doses of MMR vaccine given at least one month apart to give the best level of protection against measles.

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### **Are there any contraindications to MMR vaccination?**

1. Anaphylaxis following a previous dose of MMR or one of its constituents (e.g. Neomycin, Gelatin)
2. Significantly immunocompromised persons, such as those with untreated malignant disease and immunodeficiency states other than HIV infection, and those receiving immunosuppressive therapy, high-dose x-ray therapy and current high-dose systemic corticosteroids (see Chapter 2)
3. Pregnancy.  
Furthermore, pregnancy should be avoided for 1 month after MMR as it is a live vaccine (containing weakened or attenuated virus)

### **The following are NOT contraindications to MMR vaccine**

1. Allergy to egg, even anaphylaxis following egg.  
Currently-used measles and mumps vaccines do not contain significant amounts of egg cross-reacting proteins and recent data suggest that anaphylactic reactions to MMR are not associated with hypersensitivity to egg antigens but to other vaccine components (Gelatin or Neomycin)
2. Breast-feeding
3. HIV-positive patients who are not severely immunocompromised
4. Personal or family history of convulsions. Advice regarding the possibility and treatment of pyrexia should be given.
5. Immunodeficiency in a family member or household contact
6. Uncertainty as to whether a person has had 2 previous MMR vaccines
7. Administration of anti-RhD immunoglobulin. As anti-RhD immunoglobulin does not interfere significantly with the antibody response to MMR vaccine, the two injections may be given simultaneously (in different syringes, at different sites), or at any time in relation to each other.

### **Are there any precautions to MMR vaccination?**

1. Acute severe febrile illness, defer until recovery
2. Injection with another live vaccine within the previous 4 weeks
3. Recent administration of blood or blood products\* except anti-RhD (see above)  
Blood and blood products may contain significant levels of virus-specific antibody, which could prevent vaccine virus replication. Where possible, MMR should be deferred for at least 3 months after receipt of low-dose immunoglobulin, 6 months after red-cell transfusion, and 11 months after high-dose immunoglobulin (as for Kawasaki Disease).  
If the MMR vaccine is administered within these timeframes, a further dose should be given outside these times.
4. Patients who developed thrombocytopenia within 6 weeks of their first dose of MMR should undergo serological testing to decide whether a second dose is necessary. The second dose is recommended if the patient is not fully immune to the 3 component viruses.

### **What adverse reactions may be expected after vaccination?**

Pain and erythema may occur at the injection site (3-8%). Fever (6%), rash (7%), may also occur. 'Mini-measles' may occur 6-10 days after immunisation and 'mini-mumps' may rarely occur during the third week after immunisation but these are not contagious.

The rubella component of MMR vaccine may produce a rash, mild arthralgia, and lymph-node swelling 2-4 weeks post-vaccination, particularly in postpubertal females (up to 25% of recipients) but this is not contagious. The incidence is lower than after natural disease

There is no evidence of congenital rubella syndrome or increase in other teratogenic effects in women inadvertently given rubella vaccine before or during early pregnancy, but pregnancy remains a contraindication.

Adverse reactions are considerably less common (under 1%) after a second dose of MMR.

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### **What if there is an outbreak of rubella in a healthcare institution?**

If an outbreak of rubella occurs in an institution or an area served by an institution, HCWs without evidence of immunity to rubella, or without documented evidence of having received two doses of MMR, should be given 1 dose of MMR.

Antibody response to the rubella component of the MMR vaccine does not develop quickly enough to provide effective prophylaxis after exposure to suspected rubella. However, the vaccine can provide protection against future exposure infection. Therefore, contact with suspected rubella provides a good opportunity to offer MMR to previously unvaccinated individuals. If the individual is already incubating rubella, MMR vaccination will not exacerbate the symptoms.

### **What about post exposure prophylaxis?**

Human normal immunoglobulin (HNIG) is not routinely used for post-exposure protection from rubella since there is no evidence that it is effective. It is not recommended for the post-exposure protection of pregnant women exposed to rubella.

### **Reference:**

National Immunisation Advisory Committee Immunisation Guidelines for Ireland 2008  
Chapter 14 Rubella (updated September 2011) available at  
<http://www.immunisation.ie/en/HealthcareProfessionals/ImmunisationGuidelines2008/>

For more information see [www.immunisation.ie](http://www.immunisation.ie) and [www.hpsc.ie](http://www.hpsc.ie)