SUBSEQUENT CARE

MEASLES, MUMPS & RUBELLA (MMR) VACCINE ADMINISTRATION

Keywords: MMR. Measles, mumps, rubella, vaccination, low immunity, non-immune, immunisation

AIMS

- The prevention of congenital malformations due to rubella infection in a subsequent pregnancy.
- To inform clinical staff of the key points, procedure, contraindications, precautions and side effects relevant to administration of the measles, mumps and rubella (MMR) vaccine.

BACKGROUND

Maternal rubella infection in the first trimester of pregnancy can result in fetal infection and malformations in up to 90% of affected pregnancies. Fetal damage after 16 weeks is rare but has been reported up to 20 weeks gestation. The number of cases of congenital rubella syndrome (CRS) has fallen rapidly since rubella vaccine licensure in Australia.1

Maternal rubella infection can result in miscarriage, fetal infection, stillbirth, and fetal growth restriction. Neonates with CRS may have features including cardiac, auditory and ocular defects, thrombocytopenic purpura, haemolytic anaemia, enlarged liver and spleen, inflammation of the meninges and brain, pneumonitis, thyroid dysfunction and progressive panencephalitis.2

KEY POINTS

1. **Rubella immunity should be determined for every pregnancy** and testing should be offered at the first antenatal appointment. These women can then be offered vaccination after the birth to provide protection against rubella infection and related fetal malformations in future pregnancies.2

2. Every effort should be made to identify non-pregnant, non-immune women of child bearing age and provide the MMR vaccine.1

3. The following women are more likely to be non-immune/seronegative to rubella1:
   - Indigenous women from rural or remote regions2
   - Women born overseas (particularly in Asia, Pacific Islands, sub-Saharan Africa and South America) who have entered Australia after the age of routine vaccination are twice as likely to be non-immune than Australian-born women2;
   - Non-English speaking women,
   - Women over the age of 35 (possibly due to declining immunity)2,
   - Migrant/refugees without MMR pre-departure screening, and
   - Australian-born Muslim women.1

4. Women found to be seronegative on antenatal rubella immunity testing should be offered the MMR vaccine after giving birth and before discharge1 from KEMH.

5. Adult rubella vaccination is only available as the MMR, as there is no monovalent rubella vaccine in Australia. MMR with varicella (MMRV) is not appropriate for women aged >14 years and is only used as a single dose at 18 months of age.1

6. Rh (D) immunoglobulin (anti-D) does not interfere with the antibody response to the vaccine. If anti-D is also required, the two may be given at the same time in different sites with separate syringes, or at any time in relation to each other.1

7. MMR vaccine can be given simultaneously with other live attenuated parenteral vaccines (e.g. varicella vaccine, BCG) and other inactivated vaccines using separate syringes and injecting
sites. Vaccines must not be mixed together in a single syringe. If live vaccines are not given simultaneously they should be given at least 4 weeks apart.\textsuperscript{1,3}

8. Breast feeding is not a contraindication to rubella vaccine.\textsuperscript{4,5} The rubella virus may be secreted in breast milk and transmitted to neonates, however the attenuated virus is well tolerated\textsuperscript{6}, with mild or absent symptoms in situations where infection has occurred.\textsuperscript{1}

9. There is no risk to pregnant women from contact with recently vaccinated individuals with MMR vaccine.\textsuperscript{7} The vaccine virus is not transmitted from vaccinees to susceptible contacts.\textsuperscript{5}

10. If the woman has become pregnant within 28 days of a MMR vaccine, inform her that the fetus is unlikely to have been affected by the vaccine.\textsuperscript{2}

**PROCEDURE**

1. Ensure the woman understands the above issues and reasons for vaccination as soon as she is no longer pregnant,\textsuperscript{4} and gain her informed consent prior to administration.

2. Confirm by sighting pathology results that the woman’s rubella immunity level is low, and check for allergies and contraindications prior to administration\textsuperscript{1}.

3. Double check that the correct vaccine has been removed from the fridge.

4. Reconstitute the vaccine by adding the diluents to the vial, shaking until dissolved, and administer as soon as practicable (if necessary reconstituted Priorix MMR can be stored in refrigerator for <8 hours). The MMR is stored in the medication fridge between 2-8°C.

5. If the skin is not visibly clean, wipe the site with an alcohol wipe and allow to dry (alcohol can inactivate the viruses in the vaccine).\textsuperscript{3}

   - Whether administration is intramuscular (IM) and / or subcutaneous (SC) is dependent on the individual MMR brand, see vaccine vial and administer accordingly.\textsuperscript{1} See also Clinical Guideline Obstetrics & Gynaecology: Standard Protocols: Intramuscular Injections.

6. After administration, document on the woman’s medication chart (MR810). In the medical record document the following:

   - Date and time of administration, and
   - Manufacturer and batch number.

7. Provide the woman with the KEMH MMR vaccination letter. All women receiving the MMR vaccine must be counselled about the need to avoid becoming pregnant for 28 days after vaccination\textsuperscript{1}. Women who have received the MMR vaccination must be advised that they should be tested for rubella immunity 6-8 weeks after vaccination.\textsuperscript{1,5} Women who have negative or very low antibody levels after vaccination should be revaccinated and retested.\textsuperscript{1}

**CONTRAINDICATIONS\textsuperscript{1}**

- Allergy to vaccine components:
  - Anaphylaxis following a previous dose of rubella, MMR or MMRV or
  - Anaphylaxis following any vaccine component\textsuperscript{3}.

- People with impaired immunity/ immunocompromise.\textsuperscript{3,5} Rubella containing vaccine should not be administered to women with congenital or acquired impaired immunity. This includes:
  - Those receiving high dose corticosteroids, immunosuppressive treatment, or recently received chemotherapy,
  - Transplant recipients (solid organ or bone marrow within 2 years of transplantation),
  - General radiation or X-ray therapy,\textsuperscript{3}
  - Generalised malignancy, aplastic anaemia, graft-versus-host disease, congenital immunodeficiency, conditions of the reticuloendothelial system (such as active leukaemia, lymphoma, Hodgkin’s disease), or
  - In cases where the normal immunological mechanism may be impaired as in hypogammaglobulinaemia, and severe (CD4 cell count <15%, acquired immunodeficiency syndrome (AIDS) or symptomatic) human immunodeficiency virus (HIV).
- Exception: Rubella vaccine or MMR may be given to HIV positive women where immunocompromise is mild (e.g. asymptomatic and CD4 cell count >15%).
- Pregnancy: pregnancy should be avoided for 28 days after receiving the live MMR vaccine. If the woman becomes pregnant in this period, she should be counselled by her medical practitioner. No evidence of vaccine induced Congenital Rubella Syndrome has been reported. Based on this evidence the vaccine cannot be considered teratogenic and termination of pregnancy following inadvertent vaccination is not indicated.

PRECAUTIONS

- Rubella containing vaccine should not be given within at least 3-11 months after administration of packed red blood cells, whole blood transfusion, immunoglobulin (except anti-D; see key point 6 above), or other antibody-containing blood products (e.g. plasma or platelet products), because the expected immune response may be impaired, with vaccine failure due to passively acquired MMR antibodies. More specific guidance of vaccine deferral periods depending on the type of blood products received by the patient is available in the Australian Immunisation Handbook (pages 167 & 393).

SIDE EFFECTS OF MMR VACCINE

- Occasional injection site nodule for a few weeks: No treatment required.
- 7-10 days after injection:
  - Fever lasting a 2-3 days, faint red rash (not infectious), head cold/ runny nose, cough and or puffy eyes. Advise the woman to take extra fluids and use paracetamol 500-1000mg, as required, every 4-6 hours up to 4 times per day; paracetamol should not be given for more than 48 hours without seeking medical advice;
  - Drowsy or tired;
  - Salivary gland enlargement.

REFERENCES (STANDARDS)


RESPONSIBILITY

OGCCU / Public Health Physician CDC NMHS

Policy Sponsor
Nursing & Midwifery Director OGCCU

Initial Endorsement
July 2003

Last Reviewed
May 2014

Last Amended

Review date
May 2017