

MVEC protocol for measles-mumps-rubella (MMR) and varicella (V) vaccines in patients receiving regular red blood cell transfusions (July2020)

The following protocol applies to patients who:

- Are receiving regular red blood cell (RBC) transfusions, with expected ongoing transfusion requirements, and no interval of at least 6 months between transfusions expected in the foreseeable future
- Have not received any other IgG containing blood products in the last 11 months
- Have no contraindication to the MMR or MMRV vaccines
- Are not already known to be IgG positive for measles, mumps, rubella (MMR) and/or varicella (V)

For patients who are ≥ 12 months of age, and not yet received MMR/MMRV vaccines:

1. Baseline serology:

- Check measles, mumps, rubella and varicella IgG serology prior to vaccination. Take blood test for serology prior to the next transfusion i.e. < 7 days prior.
- If any one of the three antigens [measles, mumps, and/or rubella IgG] is negative proceed to vaccination - see 2 below.
 - If varicella IgG negative - see 2a below.
 - If varicella IgG positive only require MMR vaccine - see 2b below.
- If measles, mumps and rubella IgG positive, or if there is an equivocal result, discuss with haematologist and/or immunisation specialist.

2. Vaccination:

- a. If any one of the three antigens [measles, mumps, and/or rubella IgG] is **negative** and varicella IgG **negative**:
 - If child 12 months to < 18 months of age: give MMR vaccine now. MMRV vaccine at 18 months of age, with a minimum interval of 4 weeks between doses (Note MMRV should not be given as the first dose of measles containing vaccine).
 - If child > 18 months of age: give MMR vaccine now. MMRV vaccine at least 4 weeks after the dose of MMR vaccine.
- b. If any one of the three antigens [measles, mumps, and/or rubella IgG] is **negative** and varicella IgG **positive**:
 - If child 12 months to < 18 months of age: give MMR vaccine now. MMR vaccine again at 18 months of age, with a minimum interval of 4 weeks between doses.
 - If child > 18 months of age: give MMR vaccine now. MMR vaccine again at least 4 weeks after the first dose of MMR vaccine.
- Timing of vaccine administration
 - If RBC transfusions are < 2 months apart: ideal to administer at midpoint between transfusions.
 - If RBC transfusions > 2 months apart: give at least 3 weeks prior to the next transfusion.
 - Vaccines can be administered at the RCH Immunisation Drop In Centre, or at the patient's local GP practice after communication between the treating team and the GP.

3. Check serology:

- Check measles, mumps, rubella and varicella IgG approximately 4 weeks post the second MMR containing vaccine.
- Timing can be adjusted to fit in with the next transfusion - should be taken on the day of the transfusion (prior to transfusion), a minimum of four weeks post vaccine.

4. Interpretation of serology and further action:
 - IgG positive or four-fold increase in IgG titre: Immune. No further vaccine required.
 - IgG negative: Not immune. Repeat dose of appropriate vaccine (maximum of three total doses of vaccine), followed by repeat serology as per guidance to check serology (see 3 above).
 - Measles, mumps and/or rubella IgG negative, Varicella IgG negative – give MMRV vaccine.
 - Measles, mumps and/or rubella IgG negative, Varicella IgG positive – give MMR vaccine.
 - Measles, mumps and rubella IgG positive, Varicella IgG negative – give Varicella monovalent vaccine.
5. Documentation of immune status
 - Summary of immune status should be documented in the medical record, and provided to the patient and primary health care provider.
 - If varicella IgG negative this should include a recommendation to consider zoster immune globulin (ZIG) if also immunocompromised and exposed to varicella infection (chickenpox) in the community [see [RCH Chickenpox \(varicella\) clinical practice guideline](#)]. If don't meet ZIG criteria could administer another varicella vaccine (within 72 hours of exposure).
 - If measles IgG negative this should include a recommendation regarding normal human immunoglobulin (NHIG) if exposed to measles.

For patients who are ≥ 12 months of age and have previously received two doses of MMR and one dose of varicella containing vaccine:

- Review immunisation history and consider serology.
 - If previously received 2 doses of MMR vaccine and one dose of varicella containing vaccine greater than 3 weeks prior and greater than 6 months post RBC transfusion – expect normal immune response, no additional action required.
 - If previously received MMR/MMRV vaccines less than 3 weeks prior or less than 6 months post RBC transfusion consider checking serology given potential for lower immune response rates. Check measles, mumps, rubella and varicella IgG just prior (i.e. < 7 days) to the next transfusion. Proceed as per steps 4-5 above.