

Measles, mumps, rubella and varicella are vaccine-preventable diseases. The efficacy of two doses of vaccine (one for rubella) is close to 100% for measles, 76-95% for mumps, 95% for rubella, and 98-100% for varicella. If born before 1970, you may be immune to measles, mumps and rubella due to naturally acquired infection; after 1970 you most likely received one or two vaccines. You may be immune to varicella due to naturally acquired infection or you may have received one or two vaccines (vaccine introduced in Canada in 1999). If you are unable to locate your vaccination records, revaccination is safe unless you are pregnant or immunocompromised.

**Measles:** Measles is one of the most highly communicable infectious diseases with greater than 90% secondary attack rates among susceptible persons. Symptoms include fever, cough, runny nose, red eyes, Koplik spots (white spots on the inner lining of the mouth), followed by a rash that begins on the face, advances to the trunk and then to the arms and legs. The virus is transmitted by the airborne route, respiratory droplets, or direct contact with nasal or throat secretions of infected persons. The incubation period is 7 to 18 days. Cases are infectious from 4 days before the beginning of the prodromal period to 4 days after rash onset.

**Mumps:** Mumps virus is highly contagious and is transmitted primarily by droplet spread, as well as by direct contact with saliva of an infected person. Symptoms of mumps virus infection include fever, headache and muscle aches followed by swelling in one or more salivary glands (usually parotid gland). Viral meningitis, deafness and infection of the testicles or ovaries may occur. The incubation period is 16 to 18 days. Mumps virus has been isolated from saliva 7 days before to 9 days after the onset of parotitis.

**Rubella:** Rubella virus is highly communicable and is transmitted by droplet spread or direct contact with nasopharyngeal secretions of infected people. Symptoms include a transient rash, swollen glands, joint pain and low-grade fever (up to 50% have no symptoms). The incubation period is 14 to 21 days. Cases are infectious from 1 week before to at least 4 days after the onset of rash. Transmission from an infected mother to her fetus during pregnancy may result in Congenital Rubella Syndrome (CRS) in the infant.

**Varicella/Zoster:** Primary infection causes varicella (chickenpox) and reactivated infection results in herpes zoster (shingles). Symptoms of varicella include low-grade fever and malaise, followed by a rash with crops of lesions at different stages that progress rapidly from macules to papules to vesicular lesions before crusting. Symptoms of herpes zoster include pain or burning followed by a vesicular rash on one side of the trunk or face and may affect the eye. Complications are mainly due to secondary bacterial infection. Varicella is spread by the airborne route, as well as by direct contact with virus shed from skin lesions. The attack rate among susceptible contacts in household settings is 65% to 87%. The incubation period is 10 to 21 days. Cases are infectious from 1 to 2 days before onset of the rash until the last lesion has crusted.

#### **Health screening requirements:**

Proof of immunity to measles, mumps, rubella and varicella is a mandatory requirement for learners in Health Professional Programs at McMaster University.

**Measles, Mumps, Rubella:** Two measles vaccines, two mumps vaccines, one rubella vaccine required (positive IgG antibody serology will be accepted for postgraduate medicine and visiting elective undergraduate medical students ONLY).

- IgG antibody serology is not recommended either before or after vaccination.
- Vaccines must be given age 12 months or older and spaced at least 28 days apart. Booster doses of vaccine are not necessary even if IgG antibody serology is negative.

**Varicella:** Two vaccines OR positive IgG antibody serology required.

- IgG antibody serology is recommended if no previous vaccines to test for immunity due to naturally acquired infection, if not immune two vaccines will be required.
- Two doses of vaccine provide significantly better protection than one. IgG antibody serology is not recommended after vaccination; positive serology tested after one vaccine is not a guarantee of long lasting immunity and will not be accepted.
- Vaccines must be given age 12 months or older and spaced at least 28 days apart (2-3 month interval recommended age 12 months to 12 years, 6 week interval recommended age 13 years or older). Booster doses of vaccine are not necessary.

#### **28-day rule:**

- Tuberculin skin testing (TST) must be given either BEFORE (may the same day) or at least 28 days AFTER a live vaccine (MMR, Varicella).
- MMR vaccines must be spaced at least 28 days apart.
- Varicella vaccines must be spaced at least 28 days apart (ideally 6-12 weeks).
- MMR and Varicella vaccines may be given at the same time at different sites (MMRV vaccine is authorized only for age 12 months to 12 years), otherwise they must be spaced at least 28 days apart.

**Questions?** Contact the Health Screening Office: hrsadmin@mcmaster.ca, 905-525-9140 ext 22249

For more information, click on the following links:

[Public Health Canada - Diseases and Conditions](#)

[Canadian Immunization Guide - Active Vaccines](#)